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The College and Medical Education*

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The objectives of college preparation for medical studies should be defined in relation to the widening applications of science to health and disease, as a consequence of which there is a great increase in the demand for knowledge and specialized skills in a variety of different fields. Medical science and practice require a large number of workers of widely different preparation and talents in the underlying sciences, including those rare individuals with original ideas and research capacity whose contributions are the life blood of scientific progress.

The effects of environmental factors on individual health under present day conditions of living are the causes of much incapacity and illness. Physicians and others responsible for health activities need more knowledge in order to evaluate the social and environmental factors such as family income, housing, nutrition, conditions of employment and public education if they are to deal intelligently with many of the questions of individual and community health. These and other fields of medical concern suggest the importance of opportunities for certain students whose qualifications and interests equip them to deal with these phases of medicine.

In the last few years there has been increased attention given to broad programs of social security as exemplified in legislation dealing with unemployment, old age and disability and the extension of public support for health programs and medical care. There is an awakening sense of responsibility on the part of governments, the professions and educational institutions that reasonably adequate medical, dental, hospital and nursing care should, as a matter of national and local policy, be provided to every group of the population, economic as well as geographic. This trend and accompanying participation of governmental agencies is likely to have an effect upon the decisions of prospective medical students because "the type of student who studies medicine is determined to a considerable degree by the professional opportunities and public recognition of the physician."[1]

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1. Final Report, Commission on Medical Education, 1932.

Another feature is the increasing length of professional education and consequent elevation of the age at which physicians are regarded as competent to begin independent practice. There are large economic, family and social implications in the prolongation of supervised education. The new requirements of graduate medicine as defined by the American boards of specialties which become effective in 1942 may be cited as an example, although they are only partly responsible for the lengthening of medical training.

The numbers of students seeking admission to medical schools each year also has a bearing on our joint problems. Last year there were about 36,000 applications made by 12,131 individual applicants from more than 600 colleges, many of whom applied to a number of schools. Yet only 6,223 or 51% of them were accepted in any school, of whom 5,754 or 48% actually enrolled, leaving 5,908 not accepted by any American school. Only a few of the latter group matriculated abroad. It should be remarked in passing that the sixty-seven complete medical schools are now graduating more physicians than the country evidently needs and are more than maintaining the ratio of twice as many physicians per unit of population as any other major country in the world, although the problems of distribution, methods of livelihood, maintenance of standards, hospital connections and other features of medical care are only partially solved.

Still another feature of mutual concern to the colleges, universities and medical schools is the change in the point of view of professional education, particularly in the stronger medical schools. Increasingly the emphasis is being placed on the student assuming more responsibility for his own education—on learning by doing. This is exemplified by the small laboratory sections, individualized instruction, clinical clerking on the wards, intern responsibility, personal contact between instructors and students, seminars, unassigned study periods and instruction by conferences. The aim is to develop self-reliance, resourcefulness and judgment which are necessary requisites of the successful physician. It is only part of the recognition that true education is self-education and that an important purpose of medical education is to develop sound habits and methods of study which will equip all physicians to continue intellectual and professional growth throughout their careers and as far as possible to develop cultured and intellectual gentlemen to meet the ever widening demands of medicine.

Against the sketchy background of medical education so hastily drawn are the questions of the objectives and scope of college preparation and the recruitment of students. If the unit of education is the student, our concern should be the qualifications of each individual and the opportunities by which he may equip himself to meet the responsibilities and problems which will confront him in whatever capacity he may function later in life. This attitude does not emphasize standardized courses of instruction, uniform subject matter, identical length of preparation or even a single student type. Rather, it calls for diversified preparation adapted to the possible needs of medicine of the future, on the one hand, and to the special interests, aptitudes and abilities of individual students on the other.

Inasmuch as the true success of a physician and the public as well as the professional repute in which he is held is determined by his character, personality, industry, resourcefulness and judgment quite as much as by his technical skill and knowledge, the selection of students for medical study should be based on these qualities. The length or subject matter of his college preparation is, within certain limits, relatively unimportant.

The college preparation for medical studies should be devoted to general rather than largely science education. Use of the term "general education," however, needs definition. It should not mean merely a casual superficial contact with a number of different fields of endeavor. What is meant here is orientation of the student in the several major fields of knowledge, with the principles of which every truly educated person should be familiar and, in addition, reasonable mastery of one of these fields of learning. The particular field of concentration is immaterial. What is wanted for medical studies are students who, together with certain other qualities, have first class minds.

Some students, hopeful of getting into a medical school and often under advice, take a maximum amount of work in the sciences in the belief that their chances of acceptance will be improved, although this tendency is not as widespread as sometimes alleged. Students applying for admission should be selected on the basis of those qualities mentioned earlier, so far as they can be evaluated, and on evidence of capacity for intellectual growth, self reliance and maturity, all of which have little relationship to age or subjects taken. Students without those qualities have difficulty in adjusting themselves to the serious demands of the professional disciplines and the considerable degree of individualized instruction in the better medical schools. The only college subjects in addition to competence in the use of the English language in which every medical student needs basic knowledge are chemistry, biology and physics. They serve as an introduction to scientific methods and thought and provide the elementary tools of objective, quantitative study now so important in every medical field.

Several suggestions designed to allow students to complete their formal education earlier have been made. One suggestion is to shorten the medical course but the necessary scientific content and supervised clinical experience can not be given in less time with safety. If condensation of schedules is to be proposed it would be better to put it into effect elsewhere than in the period of basic professional preparation which forms the foundation for the physician's entire career. It should be pointed out that the medical course proper is shorter in the United States than in any other country where medical education is regarded as satisfactory. Adequate graduate preparation for specialized practice is a requisite for proper medical care for the country. Compromise with sound standards is unwise and unnecessary. On the other hand, the prolongation of professional training beyond a reasonable length has the danger of stifling creative ability, enthusiasm and intellectual independence, a definite hazard now recognized in some of the graduate programs.

The statement often made that students who are unable to get into a medical school represent an academic and economic waste needs interpretation. These

students are in the category of many other graduates each year who must endeavor to find their places in the world. If the basic preparation taken with the hope of getting into a medical school is a sound education, the student should be at least as well prepared for a useful career as he would be in many other fields of study. As mentioned elsewhere, the motivation of the so-called premedical courses should be that of general education.

The possibility of selecting prospective medical students early in their college course and discouraging others from continuing their preprofessional preparation has been discussed since about 1927 when the great excess of applicants first became apparent. It has been contended that early selection would permit the student to devote his college period more fully to securing a general rather than largely a scientific preparation, with advantages to the students who had been selected for admission to a medical school. One difficulty is that the medical students prepare in more than 600 colleges although most of the matriculants in medical schools come from the large universities. Correlating the programs of many institutions with the seventy-seven medical schools, some of which have applicants from 150 or more colleges each year, and determining how many and in which institutions reductions should be made and checking back, before final admission, on scholastic performance, science requirements, development of personality and other features would present many administrative difficulties.

Should some limited experimental plan by a single school or a small group be started, all the medical schools would be forced immediately to begin early selection and the poorer medical schools would probably select earlier and more energetically than the stronger institutions. The administrative confusion might react to the ultimate disadvantage of students, medical schools, colleges and the profession. Experience with premedical advisers and college staffs indicates that they prefer to formulate recommendations on medical student applicants as late in the college period as possible and only after the student has been enrolled for several years, preferably three or more. These problems would be largely solved if superior students were permitted to progress more rapidly in primary and secondary schools and complete their college period at a younger age than at present.

Many students deliberately defer and often are advised to postpone decision on their life careers until near the end of their college course. Others for different reasons do not make a decision until late in their academic period. Often these two groups include high standing and promising students who have had little science preparation but who may be excellent candidates for medical studies. The selection of students early in their college period by medical schools would probably tend to discourage these groups of highly desirable students from attempting to study medicine.

The necessity of a serious intellectual background for the demanding disciplines of medicine was generally recognized in this country about 1900. As early as 1910, twenty-eight medical schools had adopted a minimum requirement of two years of college work for admission. In 1918, 81 of the 90 schools had

adopted that standard. Ninety-three per cent of the applicants last year had three years or more of college preparation and 65 per cent of the medical graduates had baccalaureate degrees. Many medical schools have inserted different demands above the minimum requirements and have made it difficult for a single college to satisfy the regulations of any considerable number of medical schools.

Part of the problem is associated with the great increase in the numbers of college students. The enrolment in institutions of so-called higher education has increased about 1100 per cent during the last 40 years, during which period the population has approximately doubled. There are now three times as many students in these institutions as were enrolled in the secondary schools at the turn of the century. A college education has now become the accepted desirable base of general education and often of social recognition as well as a preparation for professional or advanced training. If the physician is to continue to be a health leader and adviser in his community, he must have as broad a general education as his associates in other community activities.

A feature of medical education which is largely neglected in this country is opportunity for continued development of cultural, artistic or other interests during the medical course. The present curricula are already crowded and condensed. Some schools have endeavored to introduce freedom and flexibility in the curriculum to permit continuance of intellectual and cultural growth of at least some of the students but free time has usually been devoted to additional medical studies rather than the cultivation or continuation of other interests. The difficulty, however, is not entirely one of schedules but often arises from the lack of self starting and self propelling cultural or other outside intellectual interests on the part of the students.

In spite of the large numbers of applicants, a number of medical schools accept some students below the standards which they desire. Those of superior qualifications and preparation have little difficulty getting into one or another of the better medical schools. What many medical schools are seeking is an automatic or objective basis for rejection of candidates. Some restrict admission to residents of the state, certain grades or other automatic devices. At present, the records of achievement in those colleges whose standards are known and the recommendations of instructors and advisers who are acquainted with the students and whose comments and recommendations have been found in the past to be reliable, afford, with the personal interview, a basis of selection which is quite satisfactory. Although some students should be discouraged as early as possible in their college training from attempting to study medicine, college advisers are reluctant to take the responsibility of urging students to give up their ambition to become physicians, even if they could persuade them.

The answer to be sought is an improvement in the objectives and effectiveness of college preparation. It is recognized that many of the defects in this segment of education are traceable to the inadequacies and defects in secondary education which too often fail to equip pupils with the sound rudiments of education and continue to consume a longer time than necessary. The first year or two of

college is often devoted to instruction at a secondary school level. The reorganization of elementary, secondary and college education and the stimulation of better scholarship would bring students to the professional and graduate schools at least several years earlier and better prepared.

No generalization regarding science teaching in the colleges is possible because of the wide variations between institutions. In many the preparation is excellent, in others the science instruction suffers from the same defects as other college teaching. Students of ability who have a good preparation under inspiring, capable teachers do well in the early years of the medical course and, on that foundation, almost always do satisfactory work throughout the clinical and hospital years.

The possibility of better selection of "premedical" subject matter has been long recognized in Great Britain and other European countries. The licensing corporations of Great Britain, for example, issue detailed synopses of the subjects suggested for instruction in the basic sciences which are prepared by joint committees of instructors in the medical sciences and teachers of biology, physics and chemistry in the colleges and secondary schools. These synopses are revised periodically to keep them up to date.

The motivation in the preliminary sciences is probably more important than the amount of time and content of those subjects. Much of the science teaching is presented from the viewpoint of the special interests of the particular teacher or department. Valuable material for the illustration of underlying principles of chemistry and the demonstration of methods can be found in nutrition and biology, as examples. Physics is taught in many places largely in relation to engineering. Biology too frequently is presented as topics in classification, of interest to the specialist in that field, rather than as subject dealing with the life processes of cells and simpler organisms.

The science subjects often are arranged for the needs of neither general education nor preparation for medicine. In many instances the attempt is made to teach too much in too great detail and in too specialized a manner. Cooperation between the medical school instructors in anatomy, physiology and biochemistry with college teachers in biology, physics and chemistry, respectively, should greatly simplify and strengthen the instruction in both the college and the medical school subjects. Such a plan is now under discussion in the Advisory Council on Medical Education. It is not more but a different type of science teaching that is required for purposes of both general education and the preparation for medical studies.

The college preparation should not be regarded as preprofessional or preanything but the culmination of general education. The colleges and universities should be permitted to serve that objective with a minimum of intereference or regulation by outside bodies or professional schools. The selection of students for medical studies should and progressively will be made on the basis of the qualifications of the individual regardless of the length or subject matter of his

earlier instruction, except for the necessary evidence of an understanding of the elementary sciences on which medical studies are based.

Many of the problems cited and suggestions for dealing with some of them were included in the studies by the Commission on Medical Education (1925-1932). It endeavored to emphasize the unity of medical education and stated that: "The premedical student, the medical student, the intern, the hospital resident, the general practitioner, the specialist, and the public health administrator should be looked upon from an educational point of view only as different phases in the training of medical personnel to meet the health needs of the country."

In its final report, the Commission suggested cooperation through joint committees of the various national bodies concerned with different phases of medical education to "facilitate the development of a comprehensive program of medical education and licensure." Because of the absence in the United States of any central representative body dealing with these matters or through which recommendations could be implemented, the results have been only partially satisfactory. The final organization in June, 1939, however, of the Advisory Council on Medical Education, representing thirteen national organizations dealing with different phases of medical education, holds some promise of more concerted and cooperative action. Its Committee on College Preparation for Medical Studies has recommended the following proposal to the Advisory Council:

> "Recognizing the widening public, cultural, and educational interests of medicine, the Advisory Council on Medical Education recommends to the Association of American Medical Colleges, the Association of American Universities and the Association of American Colleges that the college preparation for medical studies above the necessary grasp of the fundamental principles of biology, physics and chemistry should be devoted to general education rather than additional forms of preprofessional education."

In keeping with that action, steps will be taken through the national organizations of medical schools, licensing boards, colleges and universities to urge the general adoption of this policy. It is the aim to assist the national organizations in coordinating their efforts in the preparation and recruitment of students for medical studies, in making more effective the college teaching in biology, physics and chemistry and in arranging conferences to discuss these and other topics relating to current and probable future needs of medical education, not through compulsion of any kind but by "peaceable persuasion in a reasonable manner." Through a cooperative representative agency, such as the Advisory Council on Medical Education, it is hoped that a better appreciation of the interdependence of the different phases of medical education can be obtained on the part of colleges, medical schools, hospitals and the licensing and professional bodies and that emphasis will be placed on true educational principles and standards in the selection of students and the conduct of the medical education at its several levels.

The Relation of General Education to Professional Education

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The problems of general education in its relation to professional education have been discussed with more or less animation by those who are engaged mainly with the education of the youth who wish to enter a professional field. Medical educators, in particular, have given much thought to the matter. By experimentation, extending over a long period of years, consisting of many shifts of opinion, resulting in elimination and restoration of subjects thought to be desirable for those who intend to study medicine, this particular group seems to have reached the conclusion that any course of study which smacks of vocationalism fails to give a proper preparation for medicine, and that only a good, sound, basic general education will deliver men and women who will eventually prove to be good practitioners of medicine.

General educators do not seem to understand just what medical educators want, despite the fact that much has been said and written on that subject in recent years. They seem not to realize that medicine is an art as well as a science; in fact, more an art than a science. This attitude is evidenced by the fact that general educators recommend to their students who intend to study medicine later that science and more science is what they need. Perhaps, they are not altogether to blame for this because their views in the matter are the result of reading medical school catalogs in which requirements for admission are set forth in a way which could lead the uninitiated to believe that science is stressed as an adequate preparation for the study of medicine. Furthermore, these requirements are variable, each school setting up what, in its opinion, is the preferred course of study, although only a minimum of science is the actual foundation for such study. Many years ago medical colleges were compelled to include in their curriculum inorganic and organic chemistry, physics and biology. Even English and Latin, so-called "medical" Latin, were included for the purpose of making it possible for the medical student to understand Latin terminology in medicine, although Greek furnishes more terms to medicine than does Latin, and to write prescriptions in good Latin. But, with the improvement in college courses and, especially because of the continuing and overwhelming increase in medical knowledge, it became necessary to make room in the medical curriculum for more medicine. Therefore, chemistry, physics, biology, Latin and English were dropped from the curriculum and a knowledge of these subjects was included in the requirements for admission to the medical college.

Later, it became necessary, again, because of continuing accretions to medical knowledge, to eliminate parts of subjects from the curriculum and to stress the importance of continuing one's education in medicine by postgraduate and

graduate study. Today, it is generally understood that in the four years of the medical course it is only possible to lay a good foundation on which the superstructure needed for efficient medical practice must be built by continued study and preparation after graduation from the medical college. In other words, the young graduate is not regarded as being fitted for the practice of medicine but only fitted to carry on his studies, not by experience alone but by further continuing study.

During the time these gradual changes were taking place, medical educators were making careful studies of every factor which had any bearing, even in the slightest degree, on the accomplishment of their students. First of all, they soon became aware of the fact that these students lacked the proper preparation for the study of medicine. They seemed to lack the ability to grasp the import of what the medical school expected them to do. They floundered around for a while. Many of them decided to quit; others struggled on and found themselves laden with conditions and failures at the end of the year; others failed outright and were dropped. Naturally, this led to an inquiry into the reasons for these failures. Had the preparation in college any bearing on what happened to these students in the medical school? Or did they lack the aptitude for the study of medicine, a very important factor in later success or failure? Tests of various kinds were devised by psychologists in the endeavor to determine before the student entered medical school whether he possessed the necessary aptitude for such study. Special studies were made to ascertain whether there was any correlation between time spent in college and courses of study taken and accomplishment in the medical school later. The results of these studies are most interesting and informative.

First, let me speak of the time spent in college. For many years a high school education was the requirement for admission to the medical school. It has often been said that many of the most outstanding men in medicine were only high school graduates. True, but it never has been shown how many of this group were utter failures in medical school and later in the practice of medicine. Furthermore, during those years the comparatively small amount of knowledge in medicine did not call for much previous education. Courses in medical school began with one year of six months; then a second year—a repetition of the first year; then two years with a graded course; then three and finally, four years. Then the admission requirements were increased to one year of college work; then to two years of college work, which is the minimum requirement for admission today. However, only a very small percentage of the medical students of today, not more than 8 per cent, have less than three years of college work. Thus far, these requirements have not been raised to three years of college work —although such an increase is in the offing—because careful studies have shown that because of the fact that matriculants from this group are selected with the utmost care they do very creditable work in medical school. Nevertheless, it is the consensus that another year will make it possible to take courses which medical educators regard as being fully as important and essential, if not more

so, as the courses usually embraced in the curricula of the first and second year of the arts college. And that brings me to the real problem of the relation of general education to professional education.

What is expected of the future physician? What makes the successful practitioner of medicine? Is it the possession of a vast store of factual knowledge or the ability to make good use of his knowledge? Is this ability to make use of knowledge dependent on a natural aptitude or on a good general education which has shaped the student's mentality rather than crammed his powers of memory to the saturation point? Studies made to determine the answers to these questions have shown definitely that no matter what courses the student may have had in college, if he has not learned how to think, how to reason, how to marshal what he knows to the end that he can give the answer to any question that may arise, he lacks what is needed to make a successful practitioner of medicine. In other words, he must have acquired an education, not a training; he must be able to make use of what he has learned, not be able to repeat or reproduce—parrot fashion—what he may have stored up in his memory. He must be an educated man in every sense of the word. No one will say that science is not educative, but our scientists all became scientists after they had acquired a good foundation of a general education. Most of them are scholars of the classics, of the humanities as well as scientists. But, after they become good scientists and engage in teaching youth, they are apt to forget the path they trod to get to where they are and expect youth to begin with pure science rather than with a fundamental education. Again, the time at our disposal in which to acquire an education, professional or nonprofessional, is too short to permit of spending a lifetime in college. Therefore, there is need for careful culling, for elimination, for determining what is fundamental and what must be secured by further study later and over a long period of years.

Every field of endeavor demands more and more preparation in shorter time, hence, teachers must, first of all, lay out their course carefully and well, with the enormous and continually increasing store of knowledge and the time available for teaching in mind. It is not possible to make a specialist in any field in four years of college life, just as it is not possible to make a good physician in four years in medical school. It is possible, however, in either instance, to lay a foundation which will permit of well directed further study which may lead to a high degree of perfection. Therefore, the first essential for general education is to determine what is fundamental and what can be taught in the time available.

The next and most important item to be considered is the nature of the courses to be taken. What courses are fundamental to any field of endeavor? What courses are the groundwork of a good general education, one which can be put to good use no matter what the student may decide to do later? Answering these questions, one is faced at once by the "pre" and the "adviser." Nearly every arts college makes a supreme effort to call attention to the many varieties of "pre-" courses included in its offerings. We find "premedical;" "prelaw;" "predental;" "premusic;" "pre-engineering;" etc., etc., ad nauseam. Vocational

education! At a meeting of educators held not so long ago, an engineering teacher proposed that "vocational" "training" start with the high school! What a lot of "educational robots" that course would produce. Every man would know much (or little?) of one subject and nothing of anything else. No need for general education in this scheme of things. Culture would be forgotten entirely. No need for the humanities; for the classics; for literature. I am convinced that vocationalizing in education has done far more harm than good. It is the "moving belt," so-called, in education.

Medical educators have gone on record as being opposed to "premedical" education in any form. They even do not like the term. They did not coin it. The colleges did. It smacks of restriction, of stunting the intellect in every direction but one. It makes it seem that medicine is not all inclusive; that it only demands knowledge in a narrow restricted field; that it is not real education but only a passing track of education; that one can be a good physician and not know much of anything but medicine. The great physicians of the past, and of today, for that matter, were not only good physicians, they were also scholars, possessed of a real education, one which, from the vocational point of view, has nothing whatever to do directly with medicine or medical practice.

In my opinion, the only "premedical" advice to be given the student who intends to study medicine is that he secure a good education which should include the minimum requirements for admission to the medical school of his choice. Nor should he choose those courses which are easy to pass with an eye to taking the easiest road to acquiring the needed "hours" for passing or for the degree at the end of the four years course. That is what is happening today. How many aspirants for medical matriculation offer credits in Latin, Greek, philosophy, literature, more mathematics—any other so-called "hard" courses? Few, indeed! Seldom is the student imbued with the idea that if he has a real, a good education, he is certain to be accepted by a medical school. Rather, he feels that if he can meet the minimum requirements in point of credits or hours he will be accepted. Not so; more and more his scholarship and the subjects he has taken determine his acceptance by a medical school. Personally, I would unhesitatingly accept a Greek or Latin scholar in preference to the student who has the "required" credits in the "required" subjects. I feel certain that the scholar will succeed. The passing student may succeed. The poor student seldom succeeds.

Not to be overlooked is the content of the course and how it is taught. Too many teachers try to get to the student, in one way or another, by pages assignment, by lecture, by quiz, by written examination, all that is contained within the covers of their chosen textbook. And the student, intent on getting the necessary credits, crams and crams to the end that he will pass, but even if he does, he still knows little or nothing of his subject. How many teachers are inspiring? How many cultivate habits of thinking, of reasoning? How many help their students to get a sound education? Too few, I think. They try to do too much in too short a time. Some take too much time and crowd out other very important subjects, forcing the student to spend more time in college

without an adequate return by way of getting a good education. Therefore, course content and manner of teaching are of very great importance.

Forcing one subject, as stated, crowds out other subjects of equal importance in the scheme of a good education. The minimum requirments call for inorganic and organic chemistry, 12 hours, or one year and a half. That is a sufficient foundation for biochemistry. True, did time permit, more chemistry would be most desirable; more organic chemistry, physical chemistry, etc. But having reduced everything to fundamentals, why not leave the sating of a desire for more chemistry, or any other subject, until a later time? Any one who wishes to become a chemist will spend many years at chemistry later. Any one who wishes to become a physicist will spend more years in preparation than the four college years can give. But the intending medical student must have some knowledge of physics in order to understand the apparatus and its uses which play a part in his college work and later in his professional career. He need not be a physicist, but he must know something about physics. Of course, his professor will encourage him to take more physics, as the chemist will encourage him to take two, three or even four years of chemistry. Did time permit, that would be splendid preparation, if other subjects, nonscience subjects, were not neglected.

Too often the student is encouraged to take more science rather than the classics, the humanities, mathematics, philosophy, literature, sociology, economics, genetics, English. Unfortunately, he is inclined to accept this "premedical" advice, usually to his disadvantage. Careful study of results over a long period of years has shown that students who have followed this advice, or who have neglected the cultural subjects, do not do as well in medical school as do their fellows who have pursued the opposite course. So, we find, that the ranking group of students in medical school are the bachelors of arts; then come the three year college men; the two year men (sometimes these rank first) and fourth, and last, the bachelors of science. This is not an exceptional occurrence. It has happened that way for the past ten years during which this study has been made. Is there any significance to this? College men say, with frequent repetition, that there is little difference in courses between the arts and the science courses, but that little difference seems to be a determinant in what the student does in medical school. Then, too, there is a difference between colleges. The students from some colleges fare badly year after year regardless of what degree they may hold. And the students from other colleges do well year after year regardless of the degree they hold. Perhaps, teaching has something to do with this. I think so because I have seen it happen that when a certain teacher left one college and went to another college, there was an immediate and appreciable change in the accomplishment of the students from these two colleges. The good students came from the college with which the teacher was connected. Is there any significance in that happening? I think there is.

It is possible for a student to enter medical school without being able to present credits for any of the subjects required for admission but only by special

permission of an authorized body, the Executive Council of the Association of American Medical Colleges. Personally, I would accept a fine Greek scholar, or one with a good education in the classics or in mathematics without sufficient credits to meet the minimum requirements in chemistry, physics or biology because I would feel certain that he would do well in his medical studies. He is a student; a scholar. He can learn what he must know without placing too great a strain on his intellect. Medicine being largely an art calls for a good education in arts, in the humanities, in the classics, in philosophy, etc. Why do medical educators now insist on economics, sociology, genetics, philosophy, mathematics rather than on more science? Because the future physician must be familiar with these subjects if he is to be a true physician. He must know people; understand them; be able to solve all of their problems. Treating a patient for his physical ailment is not solving all his problems. There is much more to treat. The man must be treated. To do that calls for a very high type of fundamental education besides some knowledge of science. The old time family doctor may not have known as much of medicine as his prototype of today, but he did know his patients. That is what is needed now.

If general educators would keep all of this in mind, it is certain that they would revamp their courses, change their attitudes, cease trying to be "pre-" men and give advice to their students which would be diametrically opposed to vocationalism and stress the need for general education along lines which will fit men and women for any vocation in life. Everyone should know some chemistry, some physics, some biology, some physiology, some psychology, some philosophy and every one would be far more apt to succeed with such a broad foundation, backed up by an education in the classics, in Greek, in Latin, in the humanities, than if he had spent a strenuous four years, or less, in science and in the pursuit of credits sufficient to enable him to pass.

After all, passing means almost less than nothing. It is not difficult for the average, or even the below average, student to pass an examination. He crams for it. He ransacks the fraternity house for questions asked in previous examinations and carefully collected and preserved by his brothers and "bones" to pass the examination. One need only correlate the scholarship of students while in college with that attained in medical school to be convinced that these statements are true. Such correlations have been made by me for many years and always the result is the same. The student who ranked in the upper third of his class in college, usually will do equally well in medical school. Less than 3 per cent of this group will fail in medical school. More than one-half of the group will remain in the upper third; few will fall into the lower third in medical school. Whereas, of the group which stood in the lower third of the class in college, from 25 to 30 per cent will fail in medical school; only from 8 to 10 per cent will reach the upper third of the class. Of those who do not fail, the majority will remain in the lower third. Of the middle third group, about 7 per cent will fail. Most of the remainder will remain in the middle third. No matter how one looks at the matter, the educated student, he who has not glutted himself with science, he who has aimed at acquiring culture will rank high and

seldom will fail. The files of the Association of American Medical Colleges contain abundant proof of the truth of all the statements I have made. They are open to examination by any one who is interested in pursuing the matter further.

Summing up, I will stress the need for more college work; for a broader, less intense, course of study; for teaching more suited to our needs; for more culture and less science, without in the least deprecating the value and worth of science. The art of medicine must be conserved. It has been neglected for a long time. The need for a broader education of the physician to the end that he will serve the patient as a human being and not as a case of any particular disease cannot be stressed too much. It should be the first thought of the general as well as of the medical educator. If we will do that, the results will be much better than they have been for a long time. It is not credits or hours that count; it is knowledge and the ability to make good use of that knowledge. That is real education.

Bridging the Gap Between Collegiate and Medical Education

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The transition which confronts the student of medicine when he enters on his professional training is admittedly a large one and one which has not been bridged satisfactorily by previous training. Many of the circumstances which produce this psychologic hiatus are inherent in the change from a lay habit of living to the new demands made on the individual and which are peculiar to medicine. Some of them are the result of specific deficiencies in collegiate education. It is not our purpose here to concern ourselves with the latter. Most collegiate teachers recognize them and have made specific efforts to surmount them but the premedical student is often prone to disregard the suggestions of his lay instructors and to hearken to unofficial rumors as to what is going to be expected of him at a later date.

Our present concern is, given the specific difficulty, what can be done by the medical faculty itself to offset it? The problems of individual students embarking on a medical career are, of course, extremely diverse, but there are certain generalities which, we think, it is legitimate to draw. They are the following.

THE PROBLEM OF PHYSICAL ADJUSTMENT.—By this phrase we are referring not to the greater problem of transition from physical activity to a relatively cramped sedentary life and conditions of inadequate relaxation but to the immediate difficulty which the student has in getting settled in a new city and orienting himself in a strange school. When the dates of registration and beginning of classes fall in juxtaposition, there is likely to be a confusion of purpose during the first few days of a medical course which is geared to start suddenly and run at a rapid rate of speed. Getting started promptly is not necessarily an indication of intellectual superiority nor is its converse correlative with stupidity.

THE PROBLEM OF APPREHENSIVENESS.—Certain more or less sensitive students reach medical school in a state closely approximating a neurosis. There can be little doubt that this is the result of a traditional and organized (albeit unconsciously so) campaign on the part of recent graduates and upper classmen to terrorize a neophyte. It is significant that the offspring of physicians are relatively immune to this affliction.

THE PROBLEM OF THE INACCESSIBILITY OF PAST EDUCATION.—There is a widely encountered tendency for the freshman medical student to assume that there is little or no relationship between that which was learned in the past and that which he is about to attempt to engulf. This is particularly true of those subjects which act primarily as mental disciplines, such as languages and philosophy, but even extends to studies specifically pursued as fundamental for a technical education. Among these, mathematics is especially disregarded. Between the time the student graduates from the arts college and the day he matriculates

in medicine he manages somehow to erect a nearly impervious barrier between the "then" and the "now."

This brief statement by no means exhausts the catalogue of freshman difficulties, real or chimerical, but it is against these, as possibly susceptible of attack, that the present plan has been directed.

Having stated the problem, it is not without some fear of provoking levity (deserved or undue, as the case may be) that we[1] propose that the means chosen to offset the specific troubles noted above has been a brief course of introductory lectures. The conventional introductory lecture to the entering medical class often makes a tremendous psychologic appeal, and it was this pristine receptiveness on the part of the medical student that it was decided to exploit. With the full realization that such a program cannot convert a chronic procrastinator into an efficient worker who knows how to budget his time, instill courage into the soul of hare-hearted craven nor unfold the rich significances of a cultural life before the cerebrative processes of a congenital dolt, it was wistfully hoped that some beneficial results might be obtained.

It is of course very difficult to know just how much of the actual material covered in the particular lectures, offered during the current year was absorbed but two very definite differences between the present and previous classes were noticed.

These were (1) an absolute absence of scurrying about during the first few days of class (the course in anatomy as a consequence, after the first few weeks of school, under conditions similar to those employed in the past, was well in advance of previous classes in its dissections) and (2) no general evidences of apprehension have been apparent.

The first effect is attributed to the interpolation of five buffer days between registration and the beginning of classes. During this time the freshmen seemed to have become relatively adjusted to one another and to the upper classmen (including fraternity arrangements). They managed to accumulate their paraphernalia for study, to find adequate living quarters and the student health service completed its necessary routine requirements of the student's time.

The second effect is attributed to an innocuous contact with that dreaded corporate animal, the medical faculty. The encounter was made without any demands having been made on the student and there must have been some subsidence in his fears of impending doom and dissolution.

Whether or not the actual content of the lectures delivered left any wholesome effect will probably never be known. They were directed toward the emphasis of that breadth of outlook which is attainable through reflective living. Specific and technical references to medicine were deliberately avoided although the importance of casting back to the biological studies of collegiate days in an effort to build up the approach to medicine through an appreciation of health and normalcy rather than disease and pathology, was emphasized.

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1. The original conception for the plan as here outlined began in those departments concerned with teaching relating to the neural system. It was further evolved by each of the lecturers noted as participating in the schedule which follows.

The schedule employed during the current year was as follows:

September 19-20: Registration of first year students.

September 21: 10 A.M.—G. Lombard Kelly, Dean of the Medical School and Professor of Anatomy.—"The Importance of the Humanities."

2:30 P.M.—Eugene E. Murphey, Professor of Clinical Medicine and Lecturer in Preventive Medicine.—"Philosophy in Daily Life."

September 22: 10 A.M.—Joseph Krafka, Jr., Professor of Microanatomy.—"Heredity and Genetics."

2:30 P.M.—V. P. Sydenstricker, Professor of Medicine and Director of the Department.—"Ethics in Daily Life."

September 23: 9:30 A.M.—Hervey M. Cleckley, Professor of Neuropsychiatry.—"Environment and Adaptation."

11 A.M.—Fred A. Mettler, Professor of Anatomy and Director of the Department.—"Science and Knowledge."

September 25: Classes begin.

THE IMPORTANCE OF THE HUMANITIES

(Outline)

Definitions of the term "humanity" and the assumption of application implicit in these.

A. *The Humanities as Evidence of Discrimination in Thought*:

I. Etymology;
- (a) The medical importance of an understanding of it (examples).
- (b) A background in Greek and Latin important (examples).

II. Pronounciation and spelling;
- (a) Aided by etymological insight (examples).
- (b) Aided by specific knowledge of the grammar of the classical languages (examples).
- (c) Popularly used as an indication of the quality of educational background (examples).

III. Grammar;
- (a) Its understanding facilitated by a background in the classical languages (examples).

B. *The humanities as evidence of a sympathetic liberality in education and a wide outlook on things of interest to mankind generally*:

I. Liberality of education demanded in medicine;
- (a) Diversity of duties (examples).
- (b) A social profession (explanation).
- (c) The importance of:
  1. Modern languages (examples).
  2. Logic (examples).
  3. History (examples).

II. Sympathy of mind and manner demanded in medicine;
- (a) The importance of travel (expansion of topic).
- (b) The importance of a receptive attitude (expansion of topic).

III. References to the education and culture of physicians in literature.
1. Arrowsmith (examples).
2. The Citadel (examples).

PHILOSOPHY IN DAILY LIFE

(Outline)

A. *A definition of the nature and uses of practical philosophy*:
- (a) The origin of the term philosopher and its implications.

(b) The ubiquity of the problems toward which philosophic endeavor has been directed.
(c) Their homely applications.

B. *The philosophic schools as endeavors to solve particular as well as general problems*:

I. The Pythagoreans and the problems of material existence.
II. The Socratic quest.
III. Plato and idealism.
IV. Aristotle and the question of systematic thought; logic.
V. Epicureanism and the abundant life.
VI. Stoicism and the escape from reality.
VII. Judaism and the problem of human suffering.
VIII. Christianity and redemption.
IX. Neoplationism or an experiment in cosmopolitanization.
X. Scholasticism and the question of authority.
XI. Descartes and the Cartesian propositions.
XII. Spinoza and the modi.
XIII. Locke; innate ideas.
XIV. Kant and transcendentalism.
XV. Comte and Positivism.

C. *Philosophy as a countercheck;* Schopenhauer.

GENETICS IN THE APPROACH TO MEDICINE
(Abstract)

Mendelian principles of inheritance as learned in the premedical curriculum have their application as a basis for eugenics, positive and negative, but at present this is far from effective as evidenced by the Georgia Law and by statistics from Germany.

A knowledge of heredity is valuable, however, as an adjunct in diagnosis and treatment as indicated when a classification of diseases is based on etiological factors. Extrinsic factors that produce disease are (1) the biologic bacteria, protozoa, etc.; (2) the physical factors: as trauma, burns, etc.; (3) the chemical: as poisons, vitamin deficiencies, starvation, etc. Intrinsic factors produce congenital malformations, tumors, and various abnormal psychic states but are none the less important in the quality of so-called normal health.

In many common diseases, an interplay of both extrinsic and intrinsic factors is indicated, i.e., susceptibility to tuberculosis, diabetes, rheumatism, asthma and some hormonal dyscrasias. It is difficult to evaluate the relative importance of the two sets of factors, but the hereditary aspects should not be overlooked in any diagnosis. In special cases, the physician's duty to the patient would include advice regarding the possible perpetuation of pertinent genetic conditions.

ETHICS IN DAILY LIFE
(Outline)

Definition of ethics and ethical conduct and a comparison of ethics with morals.

A. *Variation in Ethical Codes*:

I. Lay ethics.
II. Medical ethics.
III. Difference due to intimate nature of personal contacts in medical practice.

B. *Medical ethics unlike lay ethics has no initial dogmatic premises with which it must agree but is founded in the broadest possible interpretation of the spirit of fair-play.*

I. The possibility of conflict with lay ethical codes.

C. *The pragmatic value of sound ethics*:

I. Unethical practices always ultimately opposed by the social system.
II. Ethical practices impart uniformity and directness to personal life.
III. A sound ethical code includes the best interests of the physician and his family.

ENVIRONMENT AND ADAPTATION

(Abstract)

The environment in which the organism seeks adaptation cannot be understood if only its tangibly demonstrable features are considered. As organisms are progressively integrated the demands of life change not only in complexity but qualitatively as well. The behavior of frogs whose cerebral hemispheres had been removed was found experimentally to be better designed for survival under special conditions than the behavior of normal frogs. The ascending scale of integration which culminates in personality formation and personality function is paralleled by a changing range of environmental values. This necessitates types of activity or accomplishment in some organisms which are not demanded of others; or we might even say, for some organisms the real environment is quite different from that which it is for others of the same species, though both groups are in the same place, carrying out the same activities and apparently under the same demands. Insight in reactions at the personality level is a highly purposive and healthy psychobiological characteristic. Loss of insight is probably the most common single symptom in all types of poorly designed behavior; yet the loss of insight is itself biologically purposeful. Sherrington has spoken of this loss under certain conditions as "a rough world's mercy towards its dearest possession." Diminishing insight sometimes simplifies the environment and often relieves from stress an organism which has suffered irreparable damage or which has fallen into a situation which is irremediable. Persons who must live in totalitarian states or in societies dominated by such ideologies as those which presumably prevailed during the Inquisition or the Moslem Conquest are often handicapped in their adaptation by the critical judgment and insight which is associated with humanistic culture. It cannot be denied that Santayana's assertion "reason is a sad Iphigenia who must be sacrificed if the sails of her royal father (the will) are to fill with wind," is often true.

Adaptations which are based on loss of insight involve, however, a curtailment of personality, a regression from healthy functioning at the personality level. When such a regression occurs the organism becomes more simply mechanical, more predictable, less like a total and integrated human personality. It is perhaps not an exaggeration to say that loss of insight is in a special sense an unconscious partial suicide.

In the problem of environment and adjustment nothing is of greater importance than to prevent the loss of insight in situations that are not irreversible or final.

KNOWLEDGE AND SCIENCE

(Outline)

Definition: Common meanings of these two words:

Knowledge; refers here to the sum of those intellectual processes which are employed for the direction of "conscious" action.

Science; refers to that subdivision of knowledge gained and verified by objective methods, logically supported and systematically arranged.

A. *Kinds of Knowledge*:

I. *Objective;* Practically synonymous with but more inclusive than science. Includes unorganized common sense information (Illustrations).

II. *Philosophical;* Differs from objective knowledge in that while laws of logic must be observed it is not necessarily gained nor immediately supported by objective proof (Illustrations).

III. *Mystical;* Other conscious intellectual processes upon which action is based and which are not gained objectively nor supported logically. Includes various admixtures of emotion and reason (Illustrations from anthropology and sociology).

B. *There is but one kind of science.* It has its basis in the assumption

I. *That it is directly observed through the five senses,* (Illustrations).

(a) Due to special instruments to aid the senses, different epochs adhere to different basic facts, (Illustrations).

II. *That it may be proven to others.*

(a) This implies identity of sensory function.

(b) And implies preference of sensory demonstration to logical or mystical preconceptions.

III. *That initial observer is theoretically free from preconception when he gathers his data.* This ideal can only be approximated since both reasoning processes: deduction (definition and illustration) and induction (definition and illustration) employ the tentative hypothesis (definition, illustrations and discussion of the "dead" hypothesis). The tentative hypotheses are preferably drawn from previous scientific learning, occasionally as a result of logic and almost never from emotional bias.

C. *Science is inadequate.*

I. Even though limited and constantly changing it must however be preferred in any case which it can handle (Illustration).

II. Only when science is deficient may the other two forms of knowledge be employed and of these logic must be followed whenever possible (Illustrations).

D. *The importance of intellectual independence.* The ways in which intellectual independence is forfeited and the danger signals which identify them.

I. Habit and altered situations (Illustrations).

II. Authority (Illustrations).

III. Mental unwariness.

(a) Propaganda, advertising (Illustrations).

(b) Emotional bias (Illustrations).

IV. Intellectual confusion (Illustrations).

V. Fear (Illustrations).

E. *The Hippocratic method as the method of medicine.* A blend of inductive and deductive techniques in which hypotheses are purely tentative in a developing scheme which implies intellectual independence.

The Formal Training of Medical Students in the Use of the Library

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Medical students, all of whom have had from two to four years of academic instruction, presumably have had considerable training in using library facilities. Actually, most of them seem to have had no such training, though it may be that they merely fail to realize that it is a simple matter to transfer experiences in the academic field to the medical field.

The School of Medicine of Louisiana State University is probably not unique in the repeated demonstration by its students of their ignorance of the use of library facilities. On the other hand, when a fourth year student inquires, with humility, whether back numbers of an important surgical journal are available in bound volumes, and one learns that his idea of a simple and easy way to locate a specified reference is to thumb through those volumes, then it becomes obvious that something is seriously lacking in both the academic and the medical curricula.

In an endeavor to rectify this situation, formal instruction in the use of the library was introduced into the curriculum of the School of Medicine of Louisiana State University in the session 1938-1939. The course was given in the first year in six one-hour periods and followed a seven-hour course given by the medical editor. The latter course, as a matter of convenience, was called "Medical Writing," but actually it included little more than instruction in such elementary matters as reading and study habits, note taking, the making of outlines, summaries and abstracts, and the improvement of vocabularies. This session (1939-1940) both courses were transferred to the opening weeks of the first year, which is the proper place for them.

Consultation of the literature for assistance in the organization of the course in library instruction revealed that not very much material was available on the subject. Many helpful suggestions, however, were obtained from the articles by Elizabeth D. Runge[1] of the University of Texas, Eileen R. Cunningham[2] of Vanderbilt University School of Medicine, and Cyril C. Barnard[3] of the London School of Hygiene and Tropical Medicine. The course was accordingly planned on the basis of these suggestions, plus my own previous experiences in conducting courses of this sort in academic institutions.

It was felt that compulsory attendance must be required if the course was to be of any general benefit. Students, if left to their own desires, will eliminate as much work as possible, though many of them, when it is too late to do anything about it, will regret their missed opportunities. This form of future self-reproach was eliminated by the Dean's ruling that the course in library instruction was a required part of the curriculum.

1. Runge, Elizabeth D.: Teaching the use of the library. Bull. M. Library Ass. 20:14 (July), 1931.
2. Cunningham, Eileen R.: Instruction given to medical students regarding the use of the medical library. Results of eight years practical experience. J. Ass. A. M. Colls., 12:376 (Nov.), 1937.
3. Barnard, Cyril C.: Medical school libraries. Lancet, 2:826 (Oct. 3), 1936.

The first year classes in our School of Medicine always number well over a hundred students, and any sort of intimate, personal teaching is, naturally, impossible if the class is taught en masse. It was therefore decided to devote only the first two hours to lectures before the whole class, and to spend the remaining assigned hours in the preparation of special projects by small groups, who could thus be given individual instruction.

The first two periods, which were devoted to lectures, were spent as follows:

1. A consideration of the importance of the library in a medical school, with special reference to the monetary value of such collections, the standards which must be adhered to if the usefulness of a library is to be maintained, and the care with which books must be handled and used.

2. A brief resumé of the development of medical libraries and medical literature, beginning with early Egyptian libraries and bringing the outline down to the present time. I have always felt very strongly that a proper appreciation of any subject must be based on its historical background. During this particular presentation, classics in the field of medical literature were exhibited, such as prints of the Edwin Smith Papyrus, special editions of the works of Hippocrates and Galen, early Latin texts, modern language treatises, early copies of medical journals, and other available material. The students seemed interested in these exhibits and it was hoped that the brief outline gave them some appreciation of medical libraries and medical literature.

3. A brief outline of the important modern medical libraries, and a discussion of the library of our School of Medicine, with special reference to Dr. Aristides Agramonte, the famous physician whose name it bears, and to its special collections of books and pamphlets.

4. The mechanics of the use of the library[4] and a discussion of the rules and regulations which have been found necessary for the government of this particular library. A demonstration of the use of the card catalogue was followed by a discussion and demonstration of the use of the two most important bibliographic tools in the library, the *Quarterly Cumulative Index Medicus* and the *Index Catalogue of the Library of the Surgeon General's Office.*

5. An inspection tour of the library facilities, during which the arrangement of the reading room and stacks was explained and demonstrated.

In planning the projects which occupied the remainder of the assigned time, due cognizance was taken of the fact that students should be familiar with three phases of medical literature: medical journals, reference works and bibliographies. Three projects were, therefore, worked out, each of which covered specifically one of these points.

The first project was designed to acquaint the students with some of the outstanding English and American medical journals by the simple process of requiring them to handle and examine these journals. This they had to do in order to supply the information required for each of the journals listed in a mimeographed form given to each student and to be filled in completely by him (Appendix A).

4. Medical school libraries (Annotations), Lancet, 2:754 (Sept.), 1936.

The second project was designed to acquaint the students with loose leaf reference sets. A table was arranged, on which were placed the most important loose leaf reference books owned by the Library. Again the student was required to handle and examine these books for himself, in order to supply the information required in the mimeographed form given to him (Appendix B).

Finally, and perhaps most important, each student was assigned a subject on which he was required to prepare a list of references from the *Quarterly Cumulative Index Medicus* and the *Index Catalogue of the Library of the Surgeon General's Office*. The subjects assigned were selected from bibliographies which had been compiled at various times by the library staff for members of the faculty, and were thus of practical as well as of academic interest. It will be observed (Appendix C) that experience in the use of medical dictionaries was also obtained in working out this project.

The course in the use of the library is still in a formative state, but the results obtained thus far have been most gratifying. There has been a steady increase in student attendance in the library, and in the circulation of books and journals. The library staff has been freed for more important duties by being relieved of a large amount of routine work; many students are now able to locate their own references and select their own reading.

It would be desirable to have some sort of followup of this first year course, by which there would be some supervision by the library staff of the papers and bibliographies which the students prepare in the remaining years of their medical work. No formal arrangements have as yet been made for such supervision, but it is gratifying to find many instructors, particularly those in charge of seminars, referring their students to us for consultation and assistance.

APPENDIX A*

Examine the journals listed and fill in the information required for each one:

Journal	Publisher Editor How often published	Indexed in Quarterly Cumulative Index Medicus	Material: abstracts or original articles; society proceedings; case reports; book reviews; general subject matter; any features of particular interest	Date, volume, number of journal examined
American Heart Journal				
American Journal of Anatomy				
American Journal of Clinical Pathology				
American Journal of Diseases of Children				
American Journal of Obstetrics and Gynecology				

*It will be understood that all appendices are incomplete, just enough material being listed to make clear the type of project.

APPENDIX B

Examine the reference works listed and fill in the material required for each one:

Title	Cost of original set; of upkeep	Publisher Editor	How kept up to date	Remarks
Oxford Medicine				
Tice—Practice of Medicine				
Nelson—Loose-Leaf Living Medicine				
Oxford Surgery				
Lewis—Practice of Surgery				
Nelson—Loose-Leaf Living Surgery				

APPENDIX C

Partial list of subjects assigned to students for the preparation of full lists of references from the Quarterly Cumulative Index Medicus and the Index Catalogue of the Library of the Surgeon General's Office:

1. Abdomen, gunshot wounds of. For the years 1926-1932.
2. Anemia, sickle cell. For the years 1932-1936.
3. Appendicitis, parasites in. For the years 1931-1936.
4. Appendix, pathology of. For the years 1932-1936.
5. Cecum, foreign bodies in. For the years 1916-1933.
6. Cervix, carcinoma, treatment of. For the years 1933-1937.
7. Clavicle, fracture of. For the years 1927-1937.
8. Coccidioides. For the years 1927-1934.
9. Cornea, conical. For the years 1932-1935.
10. Diaphragm, diseases of. For the years 1935-1938.

The Student Case Method of Learning Medicine

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Although the average medical student has temporarily memorized, for the purpose of passing course and board examinations, 80 per cent of an arbitrary selection of subject facts, there is fairly satisfactory evidence that he understands and retains less than 20 per cent, and that he has integrated and personalized less than 10 per cent. There surely is but little value in this forgotten 80 per cent. Moreover, he could have learned much that is fundamental to medicine during the time spent in pressure memorizing. By adopting this superficial "get by" attitude, he is encouraging a lowering of his ethical and medical standards.

There is good reason for believing that from 25 to 50 per cent of each course would be of little value even if it were integrated and available for use. By devoting one-fourth or one-half of his time to this compulsory memorizing of nearly useless, often distasteful, facts, he usually acquires a dislike for the valuable parts of the subject and slips into the "art" type of physician.

However, the chief cause of this low efficiency is poorly motivated learning and teaching. The individual student is not specifically and deeply interested in having and understanding a particular medical experience. This desired medical mental growth takes place in each individual student, not in the teacher, nor in any medical group. A vague interest in medicine, or a subject, or a belief that teacher knows best, usually becomes indifference, obediently doing the required task and make believe knowing.

As a contributing cause, the courses are over-standardized and over-directed. There is little opportunity for originality or even initiative. Practically, all work, to the details and results required, are planned and ordered by the instructor. These lifeless plans of the narrow specialist are inflicted on the bored, bewildered student regardless of his interest in them. Although most teachers seem to believe that their students do not think because of inability, it is more likely because of inopportunity. They believe it is more important to give the teacher a chance to construct a logical course and thrust it on the helpless student than to make conditions favorable for the student's medical unfolding.

The statement of the above criticism indicates a solution. If you can vitalize your facts and theories by letting each student see his need for that experience, he will be spontaneously interested. If you follow the development of his medical interests, he will be automatically motivated, his new knowledge retained, organized and usable, because intimately associated with real cases and his previous experiences.

This can be done by exposing each student to the preclinical, clinical and intern work simultaneously; integrating it around personal cases and around the particular student; placing emphasis on understanding and applying the biologi-

cal fundamentals. All parts of a student's training, normal and pathological, laboratory and book, practical and theoretical, would evolve together with the growth of his medical personality.

Fortunately, the details of the application of this case-student method will depend on local experimentation with the available clinical and teaching material. A cooperative workable plan can be developed, tested and approved by any medical group believing and applying the pedagogical ideas involved.

The following is a tentative plan. The applicant would be told about the method to be used. Some selection of better students would thus occur. The accepted entering students and chief contact teachers would be lectured to for one-half hour about the method, and the practical procedure to be followed in carrying it out. Each student would then be scheduled to some simple hospital case, (leg fracture with abrasions) two hours a day or night for two weeks. He would have about twenty cases a year, which would increase in complexity and variety. At first, emphasis would be placed on anatomical and bacteriological types.

As much as possible of the work in care and treatment of the patient would be done by the student under the guidance of the case instructor. On the first day, the case would be presented (20 minutes) to each student individually or in small groups of about eight. Each student is to take part in the discussion following the presentation.

Soon after the presentation of the case, he will attempt to find out for himself what it is that he needs and wants to know. With these rough plans, he will visit his councillor (a staff member who believes in the method and is willing to follow the student rather than direct him) for, perhaps, one-half hour. During this conference, the student will outline the case and tell the councillor what he believes he needs to know to understand it better. The above case plans will be expanded and made more specific, involving fairly definite amounts of the various fundamental subjects. Anatomy, perhaps 40 hours; bacteriology, 10 hours; pathology, 5 hours; pharmacology, 5 hours; biochemistry, 3 hours; physiology, 3 hours; medicine, 10 hours. Next, he will go to a departmental instructor and talk with him about the case and particularly about those aspects of his program which come under that instructor's special field—anatomy, biochemistry or whatever department it is. He will bring a plan of the sort of work he believes will be most valuable and interesting to him. This plan is discussed, modified or approved as it is, and the student is ready to begin work. From time to time, he will have questions to ask, or he may wish to change his plans. The instructor and the student will keep records of quantity and quality of work done. At some time during the two weeks that he is on a case, he will visit each of the other departments to arrange and execute a similar program. It seems advisable that the student do at least 2 hours work per case in each department. This would encourage finding the less obvious values. The talks might lead to unexpected new ones.

As soon as the student's outlined work and study is finished, he will report to each of his subject instructors, giving written and oral evidence of the con-

tributions to his subject and case knowledge. When all the subject work is completed, he will again confer with his councillor about the medical applications of this new knowledge. Then 10 hours clinical study and laboratory work would insure medical understanding. Finally, at the end of the two weeks of care, treatment and study of the patient, a rather complete report is made to the case instructor.

The next case will be handled in a similar way but each case is a new and different problem, to be worked out by the student in a unique manner. The subsequent cases assigned to any particular student will be selected to fit in between previous experiences. All cases are studied each year from all fields of medicine but taken up at a higher level each following year. The student will be consulted about the available cases to be certain that he gets the right case at the right time.

Even though each talk with an instructor helps to integrate new knowledge with previous attainments in subject and case understanding, the last two weeks of each year could be used for reviewing and consolidating the year's gains. The student should make a report of this organized knowledge with some indication of what he believes he should study the next year. The student's record, combined with the opinion of the instructors he has contacted, would largely determine his standing, as well as suggesting the following year's work. At this time, any students who are doing unsatisfactory work would be advised to use this year's experience for another calling.

During the fourth year, 4 hours of intern work would be advisable. Both student and teacher should endeavor to obtain new cases to round out the apprenticeship. It will probably be necessary to study some nonavailable cases. Each subject will again be reviewed but this time more thoroughly organized and applied. The records should show that all minimal requirements have been met. The case reports could be used to show adequate understanding and ability to use subject material. The student is now ready for state board or any other necessary tests.

In such a plan there would be no place for the systematic lecture, though it may be desirable to have various specialists give open lectures on special topics. Each department would have a student seminar to present new and supplemental material.

In carrying out the above plan, the various departments could be much as at present. The usual amount of apparatus, supplies and desk space would be adequate, but a greater adaptability would be required so that many different pieces of work could be done in the laboratory at the same time. It would be desirable that less rigid hours be required; in fact, the scheme would work best if the laboratory books and instructors were available throughout the day. Although the work is done individually or in small groups, having similar problems, an increase in the teaching staff would not be required, for most medical schools have less than fifteen students for each member of the teaching staff. Fifteen students can be handled individually by an instructor without

affecting his research and administrative work too seriously. Students who are largely independent workers require less detailed instructions.

One may question the ability of the average medical student to think, plan, organize and develop his medical training efficiently. Some psychologists believe that he would be hopelessly lost although they would be forced to admit that he will be able to plan his medical activities after he leaves school. Why can he not do so while in school? Other mental specialists contend that the self governing ability is only atrophied because of disuse. They say that a student properly trained in premedical work could efficiently work out his own medical program with the advice and information of his teachers. Surely, he has enough labile mental tissue left that favorable growth conditions would permit sufficient hypertrophy to do a little independent thinking.

Some critics maintain that one of the undesirable effects of such a plan would be a lowering of the standards in preclinical work; that the students will neglect the nonclinical subject; that they would become too practical and superficial. It is undoubtedly true that some facts at present taught in anatomy, bacteriology, pathology, biochemistry, physiology, pharmacology, etc., will not be asked for if left to the student. Is it not possible that this part is superfluous? But will not the student, with the aid of the clinicians and the preclinical instructors actually understand what he does get and probably extend his preclinical knowledge in some unorthodox ways so that there is a large net balance in knowledge and understanding even in the nonclinical subjects? At least, the information he does get will be intimately associated with medicine. Whether he would voluntarily go so deeply into the more theoretical aspects of the biological sciences, as the teachers do, is a question. There would surely be some who would do so. It should be remembered that the student will be influenced by scientists and the scientific method in a way he can really appreciate.

Another objection is, perhaps, more serious although less fundamental. The present system is a going concern with the teachers trained for it and believing in it. Some of them would not and could not adequately instruct on the single student basis. They believe that the teacher, not the student is the center. They believe that their well organized course, that they have developed as specialists, contains all that the students need in just the right sequence. They do not appreciate the fact that a developing mentality grows best by adding small units at a time at places of special interest. It is the teacher's business to know where each student is in his mental development and to make available new ideas at these growing points.

The question, then, is: How could a change be tried unless you have men who believe in and are trained for the proposed change? It is probably true that there are many teachers who favor some such method. There are probably enough teachers in any school to form a nucleus. If they were in key positions, furnishing a majority of the contacts with the students in the capacity of councillors, they could determine the character of the teaching for the students and the rest of the faculty.

Report of the Committee on Aptitude Tests for Medical Schools

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Director of Study
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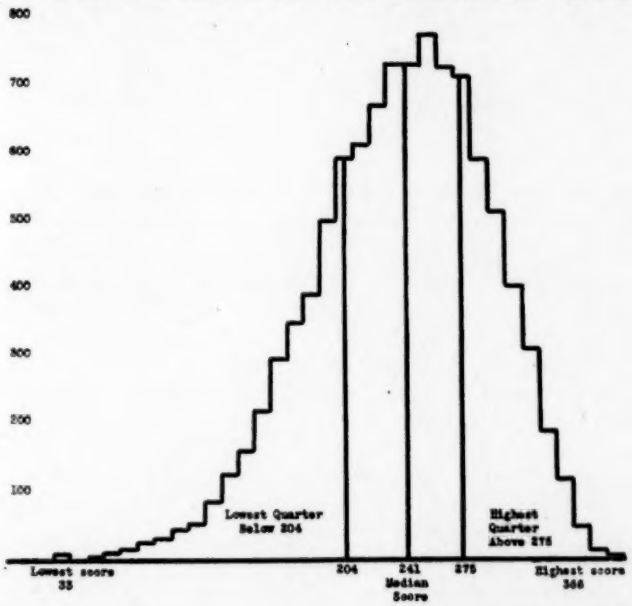
During the past year, the work of the Committee on Aptitude Tests has consisted primarily of: (1) administering Form 12 of the test to the 1939 applicants and reporting their ratings to the medical schools; (2) a study of the efficiency of the aptitude test in predicting the grades of the 1938-1939 freshman class; (3) a study of the predictive value of individual tests and questions of Form 9 with the view to improving future forms of the test; and (4) the construction of a new form (Form 13) to be used in testing the 1940 applicants.

FIGURE 1.—Total Distribution of All Total Scores on Form 12, Dec. 1938.



The Test of December 2, 1938.—On December 2, 1938, 10,261 students took Form 12 of the medical aptitude test in 621 premedical schools of the United States and Canada. This form consisted of the following separate tests: (1) Comprehension and Retention; (2) Visual Memory; (3) Memory for Content; (4) General Information; (5) Logical Reasoning; (6) Scientific Vocabulary and (7) Understanding of Printed Material. The first three tests were learning tests based on passages and an anatomical drawing found on a preliminary study sheet.

Figure 1 shows the distribution of total scores on this form. It will be noted that the scores ranged from 33 to 366 out of a possible 385. The median total score was 241, one-half of those taking the test falling above this and one-half below. The highest quarter made above 275; the lowest quarter below 204.

The scoring and tabulating of these tests was done during December and January and on January 23rd, a report of the ratings of the students tested on December 2nd, together with interpretative tables and suggestions for use of the results was sent to the admission officers of the various medical schools.

TABLE 1—DISTRIBUTION OF NUMBER TAKING TEST BY STATES

State	Number	State	Number	State	Number
Alabama	163	Maryland	157	Pennsylvania	973
Arizona	10	Massachusetts	416	Rhode Island	70
Arkansas	79	Michigan	310	South Carolina	127
California	640	Minnesota	249	South Dakota	28
Colorado	104	Mississippi	110	Tennessee	216
Connecticut	124	Missouri	243	Texas	466
Delaware	6	Montana	22	Utah	95
District of Columbia	124	Nebraska	154	Vermont	68
Florida	76	Nevada	9	Virginia	230
Georgia	192	New Hampshire	79	Washington	132
Idaho	21	New Jersey	115	West Virginia	146
Illinois	354	New Mexico	12	Wisconsin	162
Indiana	334	New York	1,199	Wyoming	15
Iowa	192	North Carolina	272	Canada	418
Kansas	138	North Dakota	27	Hawaii	17
Kentucky	158	Ohio	582	Puerto Rico	31
Louisiana	202	Oklahoma	177		
Maine	53	Oregon	84		

Since December 2nd, we have given 150 supplementary tests making a total of 10,411 tests administered during the period, September 1, 1938, through August 31, 1939.

Number of Students Taking the Test by Years.—Table 2 shows the number of tests given each year since the testing program was started. It will be noted from this table that with the exception of 1931 there was a steady increase in the number of tests given yearly up until the past two years. For the past two years, however, there has been a decrease in the number of tests given. This is due to three factors.

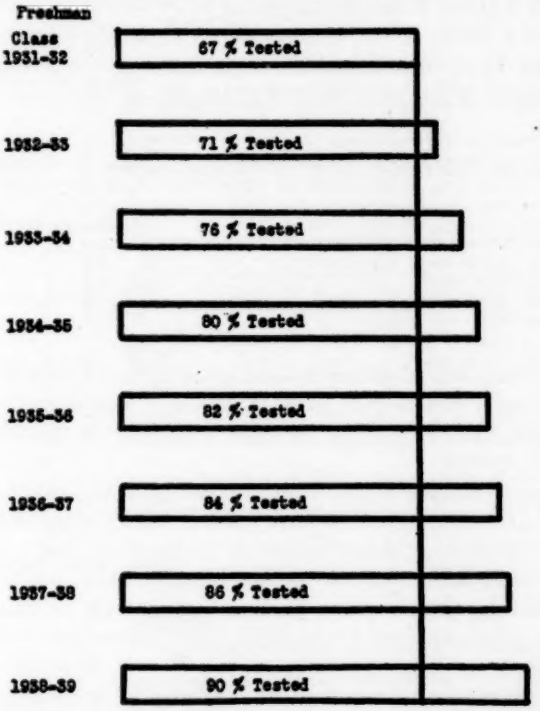
TABLE 2—SUMMARY OF NUMBER OF TESTS GIVEN SINCE 1928

Form	Date	Number of Tests	Number of Schools
Form 1	1928-1929	1,552	In Medical Schools
Form 2	1929-1930	5,016	In Medical Schools
Form 3	Feb. 1931	9,220	547 Premedical schools
Form 4	Dec. 1931	9,173	587 Premedical schools
Form 5	Dec. 1932	9,398	546 Premedical schools
Form 6	Dec. 1933	9,976	636 Premedical schools
Form 7	Dec. 1934	10,569	615 Premedical schools
Form 8	Dec. 1935	10,671	624 Premedical schools
Form 9	Dec. 1936	10,853	627 Premedical schools
Form 10	Dec. 1937	10,755	628 Premedical schools
Form 11	Apr. 1938		
Form 12	Dec. 1938	10,411	621 Premedical schools

Up until 1937, it was our practice to arrange special tests throughout the year for students who had failed to take the regular test in December. Each year several hundred such tests were given, usually in the students' own premedical

schools. As a result of a number of studies of these cases over a period of several years we became convinced that the predictive value of these tests was much lower than that of tests administered at the regular time in December. (This problem was discussed at length in our last annual report published in the JOURNAL, July, 1939). We have, therefore, refused to arrange such tests except under very unusual circumstances which seemed to warrant some special consideration.

FIGURE 2.—Percentage of Freshman Classes Having Aptitude Test Scores



A second factor accounting for the decrease is the fact that for the past two years we have definitely discouraged the practice of repeating the test, as we have established that in most instances the first test gives a more reliable picture of the student's ability.

A third factor accounting for the decrease is the fact that several of the medical schools that previously admitted students with only two years premedical work now require a minimum of three years. This prevents students from junior colleges, which give only two years premedical work, from qualifying for admission and, consequently, these schools no longer give the aptitude test.

Use Made of the Test by Medical Schools: Percentage of Classes Tested.—While there has been a slight decrease in the number of tests given, there has been an increasing tendency on the part of the medical schools to require an aptitude test rating of all applicants as shown by the fact that each year a larger percentage of the students admitted to the first year classes have taken the test. Ninety per cent of the 1938-1939 class had been tested as compared with 86 per cent of the 1937-1938 class and only 67 per cent of the 1931-1932 class. In fifty-four medical schools 90 per cent or more of the students had test scores, and in thirty schools 95 per cent or more had been tested, with several schools showing 100 per cent.

Percentile Ranking of Students Admitted to Medical School (Fall of 1938) Compared with Entire Group of Applicants Tested.—In tabulating the total score on Form 10 of students in all freshman classes, it is interesting to observe how they compare with those of the total group who took this form in December, 1937.

TABLE 3—COMPARISON OF APTITUDE TEST SCORES OF STUDENTS ADMITTED (FALL 1938) WITH THOSE OF TOTAL GROUP OF APPLICANTS TESTED

	All Applicants	Students Admitted
Highest 10 per cent made score above	303	310
Highest quarter made score above	273	284
Median Score was	234	251
Lowest quarter made score below	194	213
Lowest 10 per cent made score below	159	181

It is apparent from Table 3 that on the basis of test scores the 1938-1939 freshmen are definitely superior to the total group of applicants, thus indicating the weight attached to the test scores by the admission officers of the medical schools in selecting their students.

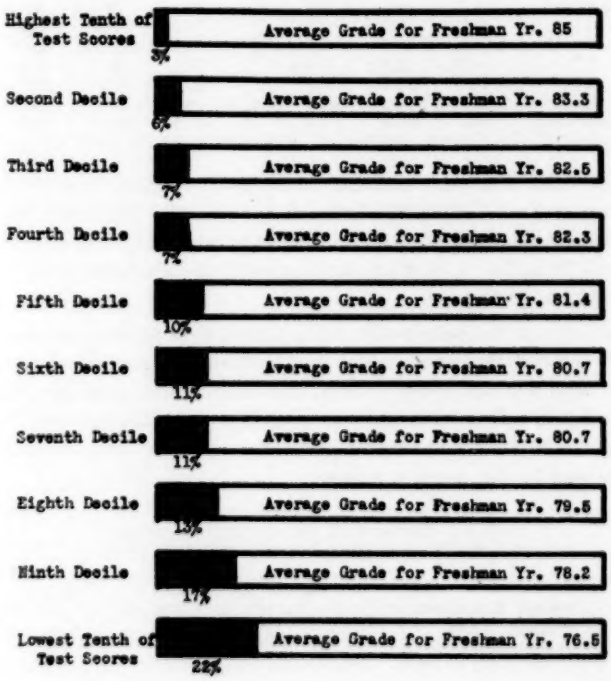
Prediction of Medical School Grades (Freshman 1938-1939) by Aptitude Test Scores.—As in past years, we have made a detailed study of the efficiency of the test in predicting the medical school grades of the last freshman class. Early in the summer, the first year grades of these students were secured from the medical schools and their average first year medical grade compared with their total score on the aptitude test (Form 10). Figure 3 shows how successfully the test predicted the performance of this group. In this chart the students are divided into ten equal groups or deciles on the basis of their total score on the aptitude test. Each bar shows the average medical school grade at the end of the first year for one-tenth of the group.

In the highest tenth of this year's class the average grade is 85, eighteen per cent have averages of 90 or above, and only 3 per cent failed; whereas in the lowest tenth of the class the average grade is 76.5, there are no grades of 90 and 22 per cent failed. Similarly, there is a gradual decline in the average grade from the higest to the lowest, and an increase in the percentage of failures as test scores decrease.

Study of Separate Parts of Form 9 and of Individual Items with a View to Improving the Test in the Future.—A number of analytical studies of parts of

the test and of individual items have been made from time to time in the past with the view to improving future forms of the aptitude test by eliminating weak points and strengthening and developing strong ones. In the summer of 1936, careful analyses were made of Form 6 and Form 8. This spring we made a similar study of Form 9 which was given in December, 1936, to applicants for the 1937-1938 freshman class. This particular form was selected because at that time it was the most recent form on which we had the medical school grades of students taking it. All students in the 1937-1938 freshman class whose first

FIGURE 3.—Medical School Performance at Various Test Score Levels Freshman, 1938-1939.



year average was 89 or above, or whose average was below 75, who had taken the test in a university having a medical school, were selected for the study. The study was limited to students who had taken the test in a school having a medical school in order to simplify the task of assembling the test papers. This gave us 137 cases in each group.

Tabulations from the test papers were made of scores on the separate tests and of total scores for the group, as shown in Table 4. In every instance, the median score, the upper quartile and the lower quartile of those making high

averages in medical school is decidedly higher than that of the low group, thus demonstrating that the test predicted success in medical school with a satisfactory degree of accuracy.

Tabulations were next made of the number in the high and low groups omitting or failing each item in Test 1 (General Information), Test 2 (Scientific Vocabulary) and Test 4 (Logical Reasoning). The tabulation was not made of Test 3 (Spelling) because as a result of the study made in 1936 it had been found

TABLE 4—MEDIAN SCORES, Q_3 AND Q_1 ON FORM 9 OF THE APTITUDE TEST OF 274 STUDENTS DIVIDED INTO HIGH AND LOW GROUPS ON THE BASIS OF FRESHMAN MEDICAL GRADES

	High Group (Ave. 89 and above)			Low Group (Ave. below 75)		
Test	Q_3	M	Q_1	Q_3	M	Q_1
1	84.2	74.2	65.4	75.5	65.4	53.2
2	88.3	84.9	80.2	84.1	77.5	66.9
3	44.5	39.3	32.6	42.	35.	26.5
4	37.4	33.4	29.3	33.7	27.7	20.5
5	78.7	71.4	56.3	62.7	52.1	39.6
Total Score	322.	295.4	265.3	278.8	249.4	216.3

to be of less value than other tests and consequently dropped from future forms. We likewise omitted Test 5 (Understanding of Printed Material) because the reading passages on which the questions are based are changed from year to year and it would be useless to draw any conclusions as to the relative value of various types of questions in this test.

The difficulty of the individual items in each of these three tests is summarized in Table 5, showing the percentage of the combined high and low groups missing the easiest item, the percentage missing the hardest item, and the median percentage wrong for all the items in the test. The term "easiest item" refers to the item missed by the fewest number of students; the term "hardest item" to the question missed by the greatest number.

TABLE 5—DIFFICULTY OF INDIVIDUAL ITEMS OF 3 TESTS OF FORM 9 OF THE APTITUDE TEST

	Percent of Cases Missing		
	Easiest Item	Hardest Item	Median
1. General Information	1	69	22
2. Scientific Vocab.	1	55	13
4. Logical Reasoning	5	26	15

From the tabulations of the number omitting and missing each question, the "selective value" of each item was calculated. This was done by taking the ratio of the number in the high group missing the item to the number in the low group missing it. For example, one particular question was missed by ten students in the high group and by thirty-eight in the low group. The high/low ratio (H/L) ratio of 10/38 or .26 gives a numerical representative to the "selective value" of the item. The smaller the decimal fraction, the higher the selective value. An easier question was missed by only one student in the high group but by thirteen in the low group giving a selective value of .07. On the other hand, some ques-

tions discriminated very poorly. One was missed by ninety-three in the high group and by eighty-five in the low group, giving a selective value of 1.09.

While this study of the selective value of individual items applies directly only to the particular item of this test, it throws light on the types of questions which are most effective. It likewise points out weaknesses in the questions which have poor selective value.

In tabulating the individual items of Test 1 (General Information) we found that questions taken directly from the premedical sciences have a much higher selective value than do general cultural questions based on knowledge of art, music, drama, history, literature, etc., or questions based on geography and current events. The questions in this test having the lowest predictive value were:

"Buenos Aires is the capital of Argentina."
"The Townsend Plan proposes to pension all old people."
"Sara Bernhardt was a great French actress."
"Sidney Lanier was one of the New England poets."

Among the most effective questions in this test were the following:

"Paleontology is the study of living birds."
"An iodine stain on a starched shirt turns green."
"One centimeter equals about 1.5 inches."
"A kangaroo is a marsupial."

As a result of this study we have greatly increased the number of premedical information questions and practically eliminated questions of a more general type in constructing the new form of the test. We also found that questions which test social intelligence have a rather high selective value. In the case of the Logical Reasoning Test, we found that the most efficient type of question is the mathematical one, such as:

> "A child's I.Q. is determined by dividing his mental age by his chronological age, and multiplying by 100. An I.Q. of 90 to 110 is considered normal. Therefore, a child who has a chronological age of 10 and a mental age of 11 is normal."

In making the tabulation of the individual items of Test 2 (Scientific Vocabulary) we wished to determine which items predicted best so that we might later use some of the most efficient ones in later forms of the test.

Study of Applicants for Admission to the 1939 Freshman Class of Seventy-Seven Medical Colleges in the United States

Twelfth Study

FRED C. ZAPFFE
Secretary, Association of American Medical Colleges
Chicago, Illinois

This study of applicants has been an activity of the Association of American Medical Colleges since 1932. It was initiated by the Commission on Medical Education in 1926 and continued for four years. For the years 1930 and 1931, the study was not made. Realizing the value of such a study, the Association decided to resume it in 1932. It gives information which cannot be obtained elsewhere. The large amount of labor entailed by it has been justified on numerous occasions and in many ways.

TABLE 1—SUMMARY OF TOTALS OF APPLICANTS AND APPLICATIONS AND ACTION TAKEN: 1934, 1935, 1936, 1937, 1938 AND 1939

	1934	1935	1936	1937	1938	1939
No. Applications	32,321	34,427	35,439	34,416	36,268	34,871
No. Applicants	12,779	12,740	12,192	12,207	12,131	11,800
Single Applicants	7,623	7,231	6,657	6,564	6,249	6,089
Accepted	4,433	3,980	3,538	3,423	3,117	3,064
	58.1%	55.4%	53.1%	52.1%	49.9%	50.3%
Rejected	3,190	3,251	3,119	3,141	3,132	3,025
Multiple Applicants	5,156	5,509	5,535	5,643	5,882	5,711
Accepted	2,986	2,920	2,927	2,987	3,106	3,147
	57.9%	53.0%	52.8%	52.9%	52.8%	55.1%
Rejected	2,170	2,589	2,608	2,656	2,776	2,564
Applicants Accepted	7,419	6,900	6,465	6,410	6,223	6,211
	57.9%	54.1%	53.0%	52.5%	51.3%	52.7%
Applicants Rejected	5,360	5,840	5,727	5,797	5,908	5,589

The present study brings to light many variations from previous studies (Table 1). First, as to the number of applicants: In 1929, there were 13,655 applicants for admission to medical colleges, of whom 51.5 per cent were accepted although all did not enroll or matriculate. Since 1932, the number of applicants has remained fairly stationary, above 12,000 (highest in 1934; 12,779; 57.9 per cent accepted). In 1939, the number dropped below 12,000, for the first time in eight years: 11,800, of whom 52.7 per cent were accepted.

Another variable is the difference in the number of applicants making only one application and those making more than one application. In 1933, the ratio was three singles to two multiples. In 1939, the ratio was about 50:50. Is this difference of significance? Can it be accounted for by assuming that medical colleges are selecting more carefully? Or, do applicants make more applications in the belief that it is difficult to secure admission and therefore they multiply their chances by making more than one application? The latter may be true in some instances because quite a number of students make three and four applica-

tions to colleges which in their opinion rank highest and they are accepted by all colleges to which application was made. On the other hand, the high multiples cannot be included in this group because when twenty, thirty or more applications are made, and none is accepted, one must assume that scholarship is a high desideratum for admission.

The belief is quite current that it is difficult to secure admission to a medical college. From some quarters has come the statement that only 20 per cent of applicants are accepted. This is obviously a misstatement. Never, in twelve years, have less than 50 per cent of applicants been accepted. With greater care in selection of students, the percentage of accepted students has dropped from 62.1 per cent in 1933 to 52.7 per cent in 1939, although about 9.0 per cent of accepted applicants did not matriculate.

The total number of applications made in 1939 was 5.0 per cent less than in any previous year since 1932. The largest number of applications was 36,268 in 1938. In 1939, 34,871 applications were made. But, it must be remembered that in 1939 there were 331 fewer applicants than in 1939.

The number of accepted single applicants has not varied greatly, except in 1938, when 46.6 per cent were accepted. The highest percentage of acceptances in this group was in 1934—57.2 per cent. In 1939, 50.3 per cent were accepted.

For the multiple applicant group the story is somewhat different. Whereas 76.3 per cent were accepted in 1933, only 52.7 per cent were accepted in 1939. These figures have further significance in that the number of single applicants has diminished markedly since 1933 whereas the number of multiple applicants has increased equally as markedly. In 1933, there were 7,269 single applicants and 4,859 multiple applicants. In 1939, there were 6,089 single applicants and 5,711 multiple applicants. The percentages of acceptance in both groups does not show much, if any, variation considering the difference in the numbers of applicants.

Does scholarship enter into the picture? Do less well prepared applicants make more than one application to ensure acceptance? Probably not, because the percentage of acceptances is greater for the multiple group than for the single group—55.1 per cent against 50.3 per cent. In all probability this is a purely personal equation. Some applicants are more sure of being accepted than are others, hence they make only one application and wait for the result before making further application if refusal is the outcome. Some applicants believe in knowing as quickly as possible whether they will be accepted, therefore they make many applications.

WOMEN APPLICANTS

The data on the women applicants are shown in table 2. Since 1933, the number of women applicants had increased considerably. The largest number of women applicants was in 1935—689. There has been a gradual falling off in numbers since then. In 1939, there were 632 women applicants. However, the number of applications made by these women has steadily increased since

1933, from 833 to 1,536 in 1939, a different picture from that shown by the men. While there has not been marked variation in the number of single applicants—355 in 1933; 377 in 1939—the number of multiple applicants has increased, as in the case of the men, from 152 in 1933 to 255 in 1939. The variations in the percentages of acceptances has been the same for the women as for the men, although the total acceptances of women applicants has always been less than of men, although not much. In 1939, 50.8 per cent of women applicants

TABLE 2—SUMMARY OF TOTALS OF WOMEN APPLICANTS AND APPLICATIONS AND ACTION TAKEN

	1934	1935	1936	1937	1938	1939
No. Applications	1,084	1,443	1,384	1,397	1,491	1,536
No. Applicants	636	689	659	649	642	632
Single Applicants	458	439	411	398	354	377
Accepted	262	230	216	209	165	174
	57.2%	54.7%	52.5%	52.3%	46.6%	46.1%
Rejected	196	209	195	89	189	203
Multiple Applicants	178	250	248	251	288	255
Accepted	122	149	157	132	157	147
	68.5%	59.6%	63.3%	52.6%	54.5%	57.6%
Rejected	56	101	91	119	131	108
Applicants Accepted	384	379	373	341	322	321
	60.4%	55.0%	56.6%	52.4%	50.0%	50.8%
Applicants Rejected	252	290	286	308	320	311

were accepted as against 52.7 per cent of men applicants. However, fewer single applicants among the women were accepted than among the men—46.1 per cent as against 50.3 per cent. On the other hand, more multiple women applicants were accepted than were men—57.6 per cent as against 55.1 per cent. In 1933, 62.3 per cent of women applicants were accepted; 50.8 per cent in 1939.

ACCEPTANCES ON BASIS OF PREPARATION

The data on acceptance according to years of college work—or preparation for medicine—are shown in table 3. First of all, there was a marked decrease

TABLE 3—DATA ON ACCEPTANCES ACCORDING TO YEARS OF COLLEGE WORK

1939	Single Applicants Accepted	Single Applicants Rejected	Multiple Applicants Accepted	Multiple Applicants Rejected	Totals
2-3 years	212	225	35	52	524
3-4 years	1168	806	469	490	2933
4 or more yrs.	220	221	152	176	769
A.B. Degree	791	645	1467	982	3885
B.S. Degree	632	542	1012	824	3010
Other degrees	18	23	9	9	59
Not Stated	23	563	3	31	620
	3064	3025	3147	2564	11,800

in the number of applicants who had less than three years of college work and a marked increase in the number of applicants who came with a bachelor's degree—or better—in the years 1938 and 1939. This difference is also notable in preceding years.

In the less than three years group, 4.4 per cent of all applicants fell into this group; 47.1 per cent were accepted; three to four years group, 24.9 per cent of all applicants, 54.9 per cent accepted; in the A.B. group—32.9 per cent of all applicants, 58.1 per cent accepted; in the B.S. group—25.9 per cent of all applicants; 51.2 per cent accepted. In 1938, 6.6 per cent of all applicants had less than three years of college work and 54.4 per cent were accepted. The only significant variation in the other groups in 1938 was in the A.B. group, which was represented by 29.7 per cent of all applicants of whom 56.5 per cent were accepted. It is quite evident that the stress that has been laid by those interested on the preference of the A.B. course to the B.S. course is meeting with some result. There is a slight reduction in the figures for the B.S. group.

Another curious fact is that only 2.4 per cent of all freshmen enrolled for the academic year 1939-1940 had less than three years of college work, whereas 63.5 per cent held a bachelor's degree or better. Details on this point have been published previously in the *Journal*.

The justification for accepting applicants with less than three years of college work is shown by the fact that their work in medical college compares favorably with that of the students with more preparation. True, it can be asked: What would be the result if all students were subjected to the same conditions of teaching, examination, etc? It has often been said that it is more difficult to "get by" in some colleges than in others, but if one scans the list of colleges which admit these students with less preparation, it is apparent that there can be no basis for this criticism. These students are selected with the greatest care and their work justifies their selection. Furthermore, the figures given show conclusively that they are not discriminated against in the selection. All applicants, regardless of degree of preparation, have the same chance of being accepted if they are found worthy.

Scholarship remains the chief basis for selection. Aids in selection are the medical aptitude test, psychological tests and special tests devised by individual medical colleges as well as personal interviews. The published requirements for admission are not always exacted. Whereas, only three colleges give as a minimum for admission a bachelor's degree, sometimes with special requirements, quite a number of colleges select their student body from among the degree holding group of applicants. Likewise, quite a number of colleges whose published requirement is two years of college work, rarely select a student from that group of applicants because they are able to fill their quota by accepting only students who have had more preparation.

To give some idea of the distribution of applications according to colleges, table 4 is presented. The colleges are arranged alphabetically. For each college the total number of applications received, the number accepted and rejected, and the number of students enrolled for the present session is given. The totals, except for enrolment, represent applications, not applicants.

TABLE 4—DATA BY COLLEGES ON TOTAL NUMBER OF APPLICANTS MADE AND ACCEPTANCES AND REJECTIONS (Men and Women)

	Applications			Students
	Accepted	Rejected	Total	Enrolled
Alabama	64	420	484	53
Arkansas	85	75	160	82
College Medical Evangelists	74	95	169	75
California	53	203	256	62
Southern California	64	233	297	54
Stanford	84	228	312	60
Colorado	57	41	98	55
Yale	77	427	504	54
Georgetown	116	475	591	77
George Washington	100	404	504	74
Howard	39	222	261	25
Emory	66	161	227	63
Georgia	61	53	114	49
Chicago Medical	90	6	96	64
University of Chicago	120	802	922	70
Illinois	171	122	293	169
Loyola	98	332	430	79
Northwestern	178	1307	1485	130
Indiana	151	868	1019	130
Iowa	86	76	162	87
Kansas	101	241	342	92
Louisville	147	515	662	91
Louisiana	112	140	252	106
Tulane	185	328	513	129
Johns Hopkins	100	350	450	70
Maryland	117	275	392	95
Boston	102	319	421	64
Harvard	151	668	819	128
Tufts	138	270	408	104
Michigan	149	588	737	121
Wayne	67	125	192	68
Minnesota	114	112	226	94
Mississippi	25	35	55	28
Missouri	50	34	84	40
St. Louis	174	858	1032	110
Washington	137	668	805	81
Creighton	90	162	252	60
Nebraska	109	48	157	94
Dartmouth	20	104	124	20
Albany	50	494	544	37
Buffalo	81	541	622	72
Columbia	163	895	1058	107
Cornell (New York)	76	841	917	70
Long Island	142	752	894	97
New York Medical	55	708	763	81
New York University	125	674	799	125
Rochester	80	437	517	57
Syracuse	51	533	584	49
Duke	111	364	475	66
North Carolina	52	124	176	43
Wake Forest	37	63	100	33
North Dakota	24	305	329	25
Cincinnati	80	320	400	78
Ohio	76	219	295	76
Western Reserve	111	729	840	76
Oklahoma	72	116	188	66
Oregon	68	286	354	68
Hahnemann	230	766	996	144

TABLE 4—Continued

	Accepted	Applications Rejected	Total	Students Enrolled
Jefferson	174	535	709	134
Pennsylvania	164	1051	1215	102
Pittsburgh	100	229	329	82
Temple	114	1043	1157	111
Woman's Medical	46	67	113	34
South Carolina	44	528	582	44
South Dakota	31	46	77	26
Meharry	120	91	211	59
Tennessee	179	199	378	63
Vanderbilt	78	527	600	51
Baylor	100	103	203	82
Texas	100	72	172	104
Utah	41	69	110	32
Vermont	32	35	67	32
Med. Coll. of Virginia	124	509	633	80
University of Virginia	66	305	371	71
West Virginia	34	38	72	25
Marquette	136	417	553	90
Wisconsin	82	79	161	82

MULTIPLE APPLICANTS

Table 5 presents the data on the multiple applicants who made 28,782 applications. The highest number of applications made by one applicant was 40—none being accepted. This table confirms the statement made above that some multiple applicants have all their applications accepted. Others have several acceptances. Of the total number of multiple applicants, 72.6 per cent made from two to five applications; 18.4 per cent made from six to ten applications; 5.8 per cent made from eleven to fifteen applications; 1.9 per cent made from sixteen to twenty applications; 0.9 per cent made from twenty-one to twenty-five applications; 0.4 per cent made from twenty-six to forty applications. Four men made 151 applications and failed of being accepted.

TABLE 5—DATA ON 8,711 MULTIPLE APPLICANTS
NUMBER OF APPLICATIONS MADE, ACCEPTANCES AND REJECTIONS

1785 made 2 applications each
786 had no acceptances
768—1 acc
231—2 acc

1145 made 3 applications each
455 had no acceptances
452—1 acc
200—2 acc
38—3 acc

738 made 4 applications each
292 had no acceptances
292—1 acc
113—2 acc
39—3 acc
2—4 acc

481 made 5 applications each
201 had no acceptances
193—1 acc
60—2 acc
19—3 acc
8—4 acc

369 made 6 applications each
166 had no acceptances
139—1 acc
50—2 acc
10—3 acc
3—4 acc
1—5 acc

248 made 7 applications each
115 had no acceptances
88—1 acc
29—2 acc
10—3 acc
3—4 acc
3—5 acc

193 made 8 applications each
95 had no acceptances
57—1 acc
26—2 acc
9—3 acc
4—4 acc
1—5 acc
1—7 acc

130 made 9 applications each
71 had no acceptances
36—1 acc
17—2 acc
5—3 acc
1—4 acc

112 made 10 applications each
61 had no acceptances
38—1 acc
9—2 acc
4—3 acc

TABLE 5—Continued

89 made 11 applications each
49 had no acceptances
31—1 acc
5—2 acc
4—3 acc

75 made 12 applications each
45 had no acceptances
25—1 acc
1—2 acc
3—3 acc
1—4 acc

71 made 13 applications each
43 had no acceptances
20—1 acc
6—2 acc
1—3 acc
1—5 acc

53 made 14 applications each
35 had no acceptances
11—1 acc
6—2 acc
1—3 acc

44 made 15 applications each
29 had no acceptances
13—1 acc
2—2 acc

31 made 16 applications each
23 had no acceptances
6—1 acc
2—2 acc

23 made 17 applications each
16 had no acceptances
5—1 acc
1—3 acc
1—6 acc

25 made 18 applications each
15 had no acceptances
8—1 acc
1—4 acc
1—2 acc

15 made 19 applications each
9 had no acceptances
5—1 acc
1—3 acc

20 made 20 applications each
16 had no acceptances
3—1 acc
1—2 acc

17 made 21 applications each
10 had no acceptances
3—2 acc
4—1 acc

12 made 22 applications each
11 had no acceptances
1—1 acc

10 made 23 applications each
9 had no acceptances
1—1 acc

9 made 24 applications each
5 had no acceptances
4—1 acc

8 made 25 applications each
4 had no acceptances
3—1 acc
1—2 acc

7 made 26 applications each
5 had no acceptances
2—1 acc

5 made 27 applications each
1 had no acceptances
4—1 acc

6 made 28 applications each
4 had no acceptances
2—1 acc

4 made 29 applications each
1 had no acceptances
2—1 acc
1—2 acc

1 made 30 applications
1—2 acc

4 made 31 applications each
2 had no acceptances
2—1 acc

3 made 32 applications each
2 had no acceptances
1—1 acc

2 made 33 applications each
1 had no acceptances
1—1 acc

2 made 34 applications each
1 had no acceptances
1—1 acc

1 made 36 applications
Had no acceptances

1 made 37 applications
Had no acceptances

1 made 38 applications
Had no acceptances

1 made 40 applications
Had no acceptances

GEOGRAPHIC DISTRIBUTION OF APPLICANTS

Table 6 presents the geographic distribution of applicants. Special comment need not be made about this table. It shows what one would expect—the states with the largest population have the largest number of applicants, although they did not make application to medical colleges situated in the state of residence. The large number of foreign countries represented is interesting although not particularly significant because these applicants may have been residents of the United States. We have no data to support that statement.

TABLE 6—GEOGRAPHIC DISTRIBUTION OF ALL APPLICANTS

	Single Applicants	Multiple Applicants	Total
New York	765	1234	1999
Pennsylvania	446	615	1061
California	361	366	727
Ohio	278	352	630
Illinois	360	261	621
New Jersey	161	365	526
Michigan	207	171	378
Massachusetts	108	263	371
Indiana	284	77	361
Texas	222	137	359
North Carolina	143	89	232
Wisconsin	149	71	220
Minnesota	145	64	209
Missouri	123	81	204
Iowa	152	43	195
Georgia	129	65	194
Kansas	135	54	189
Louisiana	153	27	180
Tennessee	133	46	179
Connecticut	44	128	172
Kentucky	87	73	160
Virginia	102	57	159
Nebraska	124	30	154
Oklahoma	105	48	153
South Carolina	95	53	148
West Virginia	84	64	148
Washington	42	104	146
Mississippi	85	53	138
Alabama	78	50	128
Maryland	79	49	128
Florida	60	68	128
Utah	60	44	104
Colorado	74	30	104
Arkansas	83	19	102
Oregon	58	39	97
District of Columbia	51	27	78
Rhode Island	16	54	70
North Dakota	31	18	49
South Dakota	30	16	46
Maine	13	33	46
Montana	13	32	45
Vermont	31	10	41
New Hampshire	21	19	40
Idaho	19	20	39
Arizona	11	14	25
Delaware	5	13	18
Wyoming	6	11	17
New Mexico	10	6	16
Nevada	2	7	9
Alaska		1	1
Canada	35	14	49
Central America		3	3
China	3	3	6
Cuba	4	1	5
Egypt	2		2

TABLE 6—Continued

	Single Applicants	Multiple Applicants	Total
Europe			
England	2	1	3
Germany	3		3
Greece	1		1
Holland	1		1
Hungary	1		1
Italy	1	1	2
Scotland	1		1
Switzerland	1		1
Hawaii	5	29	34
India	2	2	4
Japan	1		1
Korea	1	1	2
Mexico	1		1
Panama	6	4	10
Philippine Islands	1	1	2
Puerto Rico	35	70	105
South Africa	1	2	3
South America	7	4	11
Syria		2	2
Turkey		1	1
West Indies	1	1	2

Grateful acknowledgement is made to all the medical colleges which cooperated in this study by furnishing the information on which it is based.

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Entrance Requirements

A survey of the entrance requirements of the seventy-six medical colleges in the United States discloses some interesting information. It has been said repeatedly that published entrance requirements are administered with elasticity and that they do not indicate whether or not they constitute the minimum basis for acceptance. It is true that some colleges do not accept any applicant who complies with the minimum prescribed. Because of opportunity to make selection from a sufficiently large number of applicants who present credits in excess of the published minimum, only they are accepted. A college may publish three years of college work as a requisite for admission but accept only holders of a bachelor's degree. On the other hand, a college may make the degree the minimum but reserve the right to accept a well qualified, desirable applicant who has had only three, or even two, years of college work.

After all, prescribed requirements should serve as a means to secure desirable students and rigid adherence to published requirements should not, therefore, be demanded or even desired. Every college makes every effort to select students from among many applicants who, it is believed, will make good practitioners of medicine. Even with many aids to such selection, mistakes are made. A mistake proof means of selection has not yet been found.

Of the seventy-six medical colleges, 12 are on the two year college basis. To this number should be added one college which prescribes "two to three years." Fifty-three colleges have a minimum of three years of college work. In addition to these, five colleges accept only "seniors in absentia." One college gives unconditional admission to the holder of a bachelor's degree and conditional admission to the three year college student who must prove himself during his first year in the medical school before his admission is made unconditional.

Two colleges admit strictly on the basis of a bachelor's degree. One of these two makes further prescriptions as to what work that degree must represent. One college prescribes the bachelor's degree for admission but, in exceptional cases, will admit an acceptable applicant who has had two or more years of college work.

Thus, only 17.1 per cent of all colleges publish entrance requirements of less than three years of college work. However, not all these colleges actually admit such applicants. Only 2.4 per cent of the present freshman class in all colleges have had less than three years of college work. And, 63.5 per cent have a bachelor's degree. So much for published requirement.

Although many colleges urge that applicants take the Association's medical aptitude test, only thirty-six state that the test is required. As a matter of fact, more than 90 per cent of freshmen of the 1938-1939 class did take the test and inquiry among admitting officers discloses that nearly all of them make use of the test in passing on applicants.

It is rather astonishing that forty-nine of the seventy-six colleges require from 6 to 12 hours of credit in a modern foreign language. Thirty-one say French or German; 9, a modern foreign language; 3, German or Spanish; 2, German only; 1, French, German, Italian or Spanish; 1, French, German, Greek or Latin, and 2 require Latin and French or German.

Only 19 colleges prescribe a minimum

which represents the minimum requirements for admission stated in the constitution and by-laws of the Association of American Medical Colleges. That is, they do not require more than that although they urge additional preparation. Fifty-seven colleges, including those which make the foreign language prescription, ask for additional subjects or for more credit in the prescribed subjects, especially chemistry. Seven colleges demand 2 years of chemistry; 3 colleges demand 15, 18 and 20 hours, respectively. One college demands 10 hours of English; another, 2 years. One college demands 10 hours of biology.

Among the subjects specifically mentioned as required are: United States constitution, 2 hours; religion, 8 to 12 hours; mathematics, 2 hours; psychology, 2 hours; sociology, fine arts, music, philosophy; general bacteriology, 3 hours; embryology, 4 hours (colleges on the Pacific Coast all require credit in embryology for admission); physical chemistry, qualitative analysis; genetics; comparative anatomy, physiology; advanced algebra; humanities and social sciences, 18 hours; psychology.

These special prescriptions make it difficult for the prospective medical student to prepare himself to meet them. The college of first choice may not demand them; but if he fails to secure admission he must be prepared to meet specific requirements of this or some other college which does demand them. To overcome multiplicity and heterogeniety of requirements, the Advisory Council on Medical Education, as well as the Executive Council of the Association of American Medical Colleges, have urged all medical colleges to simplify their requirements, to avoid special prescription and to emphasize the value and desirability of a good, fundamental general education with no greater stress on the prescribed subjects of biology, physics and chemistry than is given in the minimum requirements laid down by the Association of American Medical Colleges. This does not represent a trend toward rigidity nor regimentation. It is intended to be a simplification, one which will remove many of the objections to the courses now taken by prospective medical students in the arts college. To do this, certainly will relieve arts college administrators of many headaches and lead to more orderliness and better work on the part of the student and, above all, to a much better preparation for the study of medicine.

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Statistics on Licensure

Again, the Journal of the American Medical Association* publishes statistics on licensure. This information has value for all medical colleges in giving opportunity to learn how their graduates fared in the examinations for licensure in the various states and possessions of the United States. In studying the data on failures, it must be remembered that a graduate may take the examination in more than one state. If he fails in each attempt, it means that many failures. Therefore, failures do not represent an equal number of graduates. Colleges having failures charged against them should make careful investigation to determine the real percentage of failures on the basis of individual graduates.

The statistics show that fifteen colleges did not have any failures, that is, approved medical colleges. The unapproved colleges are charged with 47.2 per cent failures. The largest percentage of failures was 22.6 per cent. Seven colleges had from 10.0 to 22.6 per cent failures (22.6, 20.0, 15.4, 12.2, 11.4, 10.7, 10.0: 46 examinees in eight states). One college had twelve failures among twenty examinees in one state. All seven colleges had failures in one state, New York.

Forty-five colleges had failures up to 10.0 per cent, as follows: Less than 1.0 per cent, six colleges; from 1.0 to 1.9 per cent, eight colleges; from 2.0 to 2.9 per cent, eleven colleges; from 3.0 to 3.9 per cent, seven colleges; from 4.0 to 4.9 per cent, five colleges; from 5.0 to 5.9 per cent, three colleges; from 6.0 to 6.9 per cent, one college; from 7.0 to

*J.A.M.A., 114:1685 (Apr. 27), 1940.

7.9 per cent, two colleges; from 8.0 to 8.9 per cent, one college; from 9.0 to 9.9 per cent, one college.

Although the number of graduates of Canadian medical colleges who are included in these statistics is small (in the case of two colleges only one graduate from each), it should be said that five of the nine four year colleges did not have any failures (26 examinees). One college, however, had 40.0 per cent failures. The remaining three colleges had, respectively, 4.2, 5.9 and 9.7 per cent of failures (3, 1 and 3 examinees, respectively).

Doubtless, some colleges with high percentage of failures will be disconcerted, but, as stated previously, analysis of failures may change these percentages to more favorable ones. It is also of interest to know in which subjects these failures were made and to correlate the work of the students in college with the examination results. These statistics are most interesting, especially because they include many items for consideration by the medical colleges. The Council on Medical Education and Hospitals should be commended for this fine report.

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The Ann Arbor Meeting

It has been decided by the Executive Council that it will meet in the Michigan Union—headquarters for the fifty-first annual meeting—on Saturday, October 26th and the following day if business is not concluded on the first day. And, the executive session will be called on the afternoon of the second day of the meeting, Tuesday, to give opportunity to finish business, if necessary, in the evening.

The internship will be the subject of general discussion on Monday, in which not only deans and other delegates will participate but also representatives of licensing boards and hospitals.

The topic of preparation for the study of medicine will be presented by members of the faculty of the University and of the Medical School. Postgraduate education will also be discussed and a number of papers dealing with teaching will be read.

The date of the meeting: October 28-30, 1940. Headquarters: Michigan Union. Reservations can be made by applying to Dr. A. C. Furstenberg, dean University of Michigan Medical School.

All persons interested in any phase of medical education or in medical pedagogy are cordially invited to attend the meeting and to participate in the discussions.

◆ ◆

Regional Committees on Internships

The eight regional committees appointed by the Executive Council of the Association of American Medical Colleges have met during the past sixty days to discuss plans and procedures for carrying out the purpose for which they were appointed. The committees were appointed on a geographic basis. Medical colleges, state licensing boards and hospitals will endeavor to join in a cooperative effort intended to place the internship on a university educational level. A program for intern education which will meet this intent will be drafted. Hospitals which will institute this program will be approved. The purpose of such approval is to enable graduates who seek an internship to make the right selection of a hospital in which to serve.

The deliberations of these eight committees will be submitted to the Association for action at its next executive session to be held in Ann Arbor, Michigan, October 28-30, 1940.

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Uniform Date for Announcement of Intern Appointments

In 1939 and in 1940, a Committee on Internships was appointed by the Executive Council for the purpose of soliciting the support of hospitals approved for intern training in adopting a uniform date for making announcement of intern appointments. At a conference with hospital directors and deans of medical colleges, it was decided that the acceptable date would be November 15th.

Recommendations made by deans to hospitals on applications for internships are, it was agreed, based on the work of the first three years in medical school. Students are restless until they have secured an appointment. Therefore, the sooner this matter is disposed of, the better the work of the student in his final year. Hospitals, on the other hand, prefer to have intern appointments made as early as possible to ensure that their needs for the next year will be met. Inasmuch as medical students in virtually all medical colleges have a clinical clerkship service in the junior year, by the end of that year it is possible to evaluate their work. True, complete evaluation is not possible until near the end of the final year. Even at the end of the first semester of the final year the information available is not much greater for evaluation purposes than it is at the end of the third year. The interval between the end of the third year and the beginning of the fourth year can be utilized to good advantage for holding examinations for internships, if any are held, or for personal interviews, if any. Thus, from every point of view, November 15 is a good day on which to announce appointments.

In 1940, 739 hospitals approved for intern training were contacted by letter. The returns are not yet complete as 30.5 per cent of the hospitals contacted have not yet replied to the letter sent them. However, on the basis of the returns, 64.5 per cent of hospitals replying have agreed to cooperate in the endeavor to secure a uniform date of announcement. These 477 hospitals place 5,772 interns, 73.4 per cent of the total number of approved internships in the 739 hospitals approved for internships. Only 26 hospitals, 3.5 per cent, placing 462 interns, 5.8 per cent, have refused to cooperate for reasons other than an out and out refusal. The 226 hospitals, 30.5 per cent, not yet heard from, place 1,512 interns, 19.2 per cent. A second letter is being sent to these hospitals inasmuch as it is possible that the first letter has gone astray or been mislaid.

It is justifiable to assert that this is a good showing. Some hospitals cannot select interns until after the larger hospitals have been served. In other words, they are a second or even a third or fourth choice; not because of less desirable service or opportunities but because those seeking internships prefer the larger hospitals or hospitals situated in larger cities. It is hoped that the committees working on the intern problems will be able to devise a plan whereby all hospitals which have set up an educational program for the intern, a program on an adequate university level, will be served in time to make announcement of appointments on November 15th. Plans intended to eliminate the chaos in which the whole intern problem finds itself are now in process of consideration and development. They will be presented for consideration to the representatives of the member medical colleges of the Association of American Medical Colleges at the annual meeting to be held in Ann Arbor, Michigan, October 28-30, 1940.

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Graduate Medical Education

The report of the study made by the Commission on Graduate Medical Education, appointed in 1937 by the Advisory Board for Medical Specialties, has just been published. It is not possible, in this restricted space, to make extended comment on this report, but it is well worth careful study. It summarizes the opinions and beliefs of men who have given much thought to the subject for many years; men who are fully cognizant of what is needed, what there is at hand to meet these needs and how existent opportunities can and should be utilized. It is an excellent guide for future efforts and development in the field of graduate medical education embracing the internship, the residency, post graduate medical education. One chapter is devoted to the history, problems and philosophy of the various specialty boards. Another chapter presents a complete discussion of postgraduate medical education in Great Britain. The Commission must be congratulated on

its work. It is epoch making. Its findings cannot but lead to the most fruitful efforts.

The chapter on the internship is especially important at this time when so many groups are endeavoring to bring order out of the chaos which exists today in everything that concerns the internship. The basic principles of the internship are summarized as follows:

1. The internship should be regarded as a part of the basic preparation for either beginning the general practice of medicine or undertaking advanced training in a specialty.

2. The internship should provide a real educational experience and a period of clinical responsibility under supervision that is designed to complete the clinical clerkship of the medical course.

3. The internship should be an important responsibility of the staff and should be under the direction of those members who are competent to provide the necessary instruction.

4. The internship should be the joint responsibility of the medical schools and of those hospitals that can provide a satisfactory completion of the fundamental preparation for medical practice.

The report says, further: Among the benefits that may reasonably be expected from such a program (as outlined:ED.) are: (1) a definite stimulus to the hospitals to raise their educational levels; (2) a clearer understanding on their part that meager educational opportunities do not attract the best medical graduates, and (3) manifold indirect benefits to the medical staff and patients through elevation of standards of medical service.

It is suggested that the hospital provide a nominal allowance for interns; that the increase in cost entailed by the suggested educational program be assessed against patients—or be covered by outside funds secured through developing a public relations program as a joint effort of hospitals and medical colleges.

Apropos of Education

In "The Gold Headed Cane" there is a scene when Radcliffe visits Mead in his library. He says: "As I have grown older, every year of my life has convinced me more and more of the value of the education of the scholar and the gentleman to the thoroughbred physician. Perhaps, your friend there (pointing to a volume of Celsus) expresses my meaning better than I can myself when he says that the discipline of the mind, *quamvis non faciat medicum, aptiorem tamen medicinae reddit.*" (Though it cannot make a man a doctor, it makes him all the better doctor.)

Emphasizing, again, that "there is nothing new under the sun." Fads and fashions of the day are but resurrections of older customs. At one time, a good, sound, fundamental education counted for a great deal to the future physician. For a time, it was displaced by fads and fancies, "pre" and vocationalizing. Now, there is much agitation to revert to old ways by stressing the value of a sound education, education in the real sense of the term, one which will, as one college professor said, result in turning out of college an "educated gentleman" not a vocationalized robot. God speed the day.

◆ ◆

Columbia Adopts Four Year Course in 1894

The October, 1894, number of the *"University Bulletin* of Columbia College, announced the adoption of the four years course in medicine and gave the following reasons for doing so:

First, the great discoveries of the prominent part played in diseased processes by bacteria and micro-organisms and the consequent necessity to the student of a knowledge of these organisms. Besides the entire subject of prevention of disease by the destruction of these organisms prior to their entrance into the human body must be taught. Secondly, to enable more time to be given to clinical instructions, not only by attendance on dispensary service, but it is hoped that some scheme will be adopted

by which every student will be assigned to a certain amount of hospital work in his fourth year. Incidentally, the longer time spent in the medical course will enable each student to obtain a more thorough knowledge of every subject than is possible in the present three years course.

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To the Editor:

In a paper entitled "A Method of Examination in the History of Medicine" published in the Journal, March, 1939, I made the statement that "all but seven of the eighty-four schools in membership in the Association of the American Medical Colleges include medical history in their curricula." The statement was made in good faith and the information was obtained from sources that I considered dependable.

In June, 1939, Dr. Henry E. Sigerist reported a survey which he made of the medical schools of the United States and found that fifty-four of the seventy-seven schools which replied to his questionnaire, "provide some kind of instruction in medical history."

My original statement has been quoted in several instances and I regret the error.

Edgar F. Kiser, M.D.

Stevenson's Eulogy

There are some men that stand above
The sordid common crowd,
And act like leaven to improve
The humble, and the proud.

The soldier, sailor, shepherd may
Among the great be found,
The artist rarely, fair to say,
He lives far off the ground.

The clergyman, we know not why,
Receives so little praise,
There may be cause from days gone by,
And spleen in what he says.

The doctor, though while praised aloud
For generosity,
Should take it only as a goad
To wider charity.

Discretion here the part must play
He's credited to have,
For many stand adversity
Much better than applause.

Though much we like his eulogy,
We'd like it better still
If there was less analogy
With others of good will.

Help that is given graciously
Holds still the highest place,
And better far than eulogy,
A grateful patient's face.

H. A.

College News

Yale University
School of Medicine

Dr. Francis G. Blake, Physician-in-Chief and Chairman of the Medical Board of the New Haven Hospital and Sterling Professor of Medicine in Yale University, has been appointed acting Dean. He succeeds Dr. Stanhope Bayne-Jones who will retire from the deanship July 1.

Dr. George H. Smith, professor of immunology, has been appointed assistant dean.

Dr. John R. Paul, associate professor, has been advanced to professor of preventive medicine, and Professor Leon S. Stone, associate professor, to be Bronson Professor of Comparative Anatomy.

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Medical College of Virginia

Commencement exercises closing the one hundred second session of the Medical College of Virginia, Richmond, were held June 4.

Dr. Reginald Fitz, lecturer on the history of medicine, Harvard Medical School, was the commencement speaker.

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Baylor University
College of Medicine

In cooperation with the Committee on Post Graduate Medical education of the Texas State Medical Association and the Division of Maternal and Child Welfare of the Texas State Health department, the College conducted an intensive postgraduate course in obstetrics and pediatrics for general practitioners May 20 to June 15, inclusive. The class was limited to twenty. There was a full enrollment.

◆ ◆

Jefferson Medical College

The May, 1940, issue of the Alumni Bulletin, is devoted in large part to a history of the Daniel Baugh Institute of Anatomy, of which Dr. J. Parsons Schaeffer has been head for twenty-five years. In the past fifty years, three Jefferson graduates have become surgeons general of the U. S. Army. Dr. P. Brooke Bland presented 167 rare medical books to the library. The activities of the various departments of the college are reviewed. Thirteen Ross V. Patterson fellowships have been awarded; two Horn fellowships and eleven residencies in medicine, obstetrics, roentgenology, surgery, otolaryngology, neurology and urology.

Dr. Thomas A. Shallow was presented with a plaque to mark his recent appointment to the Samuel A. Gross Chair of Surgery.

The executors of the will of Emily Barton Pendleton have announced that Jefferson is to receive a bequest of approximately $500,000 for the study of cancer and tuberculosis. The Alumni Endowment Fund has now reached a total of $219,735.65. Each graduate gives a note for $210, payable in twenty years, toward this fund.

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Duke University
School of Medicine

April 26th, Dr. Edward A. Schuman, professor of obstetrics, University of Pennsylvania School of Medicine, lectured on "Puerperal Infection." May 9th, Dr. Thomas Addis, professor of medicine, Stanford University School of Medicine, lectured on the "Treatment of Glomerular Nephritis."

◆ ◆

University of California
Medical School

The John and Mary R. Markle Foundation, New York, recently gave a grant of $2,430 for research into the bacteriophage conducted by Dr. Albert P. Krueger.

Indiana University
School of Medicine

Dr. Burton D. Myers, dean at Bloomington and professor and head of the department of anatomy, will retire at the end of this academic year having reached the age of 70. Dr. Myers has been a member of the faculty for 37 years and dean since 1927. In 1928, Dr. Myers was president of the Association of American Medical Colleges.

The Variety Club of Indianapolis has established a convalescent serum center on the campus for the use of the medical center and physicians throughout the state. At present Indiana physicians needing serums must send outside the state, the closest station being Chicago. Dr. Matthew Winters, professor and head of the department of pediatrics, has been appointed chairman of a committee to supervise the establishment of the center.

◆ ◆

University of Arkansas
School of Medicine

Dr. Charles R. Henry has resigned as full time professor of obstetrics and gynecology. He will continue on a part time basis with the department.

◆ ◆

Columbia University
College of Physicians and Surgeons

Philip E. Smith, Ph.D., professor of anatomy, recently received the Charles Mickle Fellowship of the University of Toronto in recognition of his work on the pituitary gland. This fellowship is the annual income from an endowment fund of $25,000 and is awarded to the scientist who, in the opinion of the council of the university, has done most during the preceding ten years to advance sound knowledge of a practical kind in medical art or science.

◆ ◆

Washington University
School of Medicine

Philip A. Shaffer, professor of biologic chemistry and dean, delivered the annual Mellon Lecture on May 9 at Mellon Institute. Dr. Shaffer's subject was "The Mode of Action of Sulfanilamide —Another Enigma of Chemotherapy." This lecture is sponsored by the Society for Biological Research at the University of Pittsburgh School of Medicine.

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Albany Medical College

The duration of the first, second and third years of the course has been lengthened from 32 to 36 weeks without increasing the total number of scheduled hours thus giving students more free time for reading and self-education.

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Tufts College Medical School

A five year grant for teaching and research in neurology has been received from the Rockefeller Foundation. Dr. Kurt Goldstein, clinical professor of neurology at Columbia University, has received a similar appointment at Tufts.

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Wayne University
Medical Center

A $50,000,000 program for the development of a medical education center was outlined by Dean Norris. The plan has been endorsed by the Detroit Board of Education, the Wayne County Medical Society, the University and the trustees of the Wayne University Foundation. It is planned to erect eight buildings at a cost of between ten and fifteen million dollars. The program proposes to raise $50,000,000 from donors, the major portion to be used to support the work of the center, for research and for the personnel of the faculty. Maintenance would be left to the board of education, and the present budget of the medical school would be sufficient for permanent maintenance of the campus and its buildings.

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Meharry Medical College

Dr. W. S. Leathers, dean Vanderbilt University School of Medicine, was recently elected a trustee for a five years' period.

University of Virginia
Department of Medicine

The John and Mary R. Markle Foundation has given a grant of $2,500 in support of a study of the state of calcium and bile pigments in blood serum with the aid of the ultracentrifuge in the department of biochemistry under the direction of Dr. Alfred Chanutin. Dr. Chanutin has received an additional grant of $1,800 from the Dazian Foundation for medical research in support of this same project.

Sixty-two students were graduated with the Degree of Doctor of Medicine on June 10th.

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George Washington University
School of Medicine

The present senior class has presented the school with a $10,000 endowment fund, each student in the class having signed a noninterest bearing note for $200.

Former attorney general, Homer S. Cummings, has established the Celia Cummings Research Fund by an initial gift of $1,200 a year for a five year period for the study of high blood pressure and concomitant ailments in memory of his wife. Dr. Paul F. Dickens will be director of the clinic.

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Louisiana State University
School of Medicine

At a meeting of the Council of Administration of the Louisiana State University, April 18, 1940, the recommendation of the Dean and Faculty Council of the School of Medicine to abolish the internship as requirement for the M.D. degree was accepted. Consequently, beginning with the class of 1940, the M.D. degree will be conferred on completion of the regular four years of medical curriculum.

Dr. George Walter McCoy, professor of preventive medicine and public health, will retire from the U. S. Public Health Service, June 30, after forty years' active service.

Announcement is made of the formation of an undergraduate honor society. The fourth year membership is limited to the upper tenth of the senior class, and the third year membership to the three highest ranking students in the junior class. The organization is known as "The Circle."

With the issue of May 24, *The Tiger,* which has been the official organ of the students of the School of Medicine of Louisiana State University since 1932, was discontinued. Next year a monthly publication, to be known as *The Journal of the School of Medicine of Louisiana State University,* will be substituted for it.

The George S. Bel Memorial Award, which is given for the first time this year, has been presented to James T. Nix, Jr., of this city, who was graduated from the School of Medicine of Louisiana State University in June.

The C. V. Mosby Publishing Company of St. Louis annually presents to the three students making the highest grades in medicine, obstetrics and gynecology, and surgery subscriptions to the journals which this company publishes in those respective fields. The subscription to the *American Heart Journal* has been awarded to Milton B. Flocks of Baltimore, the subscription to *The American Journal of Obstetrics and Gynecology* to Abe Mickal of McComb, Mississippi, and the subscription to *Surgery* to Elmer Craig Heringman of Brooklyn for making the highest grades in medicine, obstetrics and gynecology and surgery respectively. All three students were graduated from the L.S.U. School of Medicine in June.

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University of Minnesota
Medical School

The John and Mary R. Markle Foundation has given $3,600 to support studies of the significance of the excretion of various porphyrins by Dr. Cecil J. Watson, associate professor and director of the division of internal medicine. Dr. Arthur T. Henrici, professor of bacteriology and immunology, has received a grant of $500 from the Nation-

al Tuberculosis Association for an investigation of the acid-fast actinomyces in relation to tuberculosis. Dr. Charles E. McLennan, instructor of obstetrics and gynecology has been awarded a fellowship by the Commonwealth Fund for a year's study with Dr. Eugene M. Landis, professor of internal medicine, University of Virginia Department of Medicine, Charlottesville, on problems concerning the toxemias of pregnancy.

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College of Medical Evangelists

A new building to house some of the preclinical departments has been erected on the Loma Linda campus. Elsewhere in this issue is published an illustration of the building. Research is stressed by the provision of space for that activity.

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University of Chicago

Anton J. Carlson, Ph.D., professor and chairman of the department of physiology, Division of Biological Sciences, will become emeritus at the end of the current year. Since 1929 Dr. Carlson has held a Frank P. Hixon Distinguished Service Professorship. This title will now go to Fred C. Koch, Ph.D., professor and chairman of the department of biochemistry at the university. No successor to Dr. Carlson in the department of physiology has been announced.

Dr. Basil C. H. Harvey, professor of anatomy and dean of students, including medical students, Division of Biological Sciences, University of Chicago, will become professor emeritus September 1.

The seventh annual Arno B. Luckhardt Lecture of Delta chapter of Phi Beta Pi medical schools of the University of Chicago was delivered by Dr. Andrew C. Ivy, Nathan Smith Davis professor of physiology and professor of pharmacology, Northwestern University Medical School, April 19. His subject was "The Gastro-Intestinal Hormones: An Illustration of the Influence of a Great Teacher."

A group of lectures on biochemistry divided into three series has been arranged by the department of biochemistry, University of Chicago, as a special feature of the first term of the summer quarter. The first group will be delivered June 25-27 by Dr. Cyril N. H. Long, Sterling professor of physiologic chemistry, Yale University School of Medicine, New Haven, Conn., on "Recent Studies on the Pancreas-Suprarenal-Pituitary Relations in Diabetes Mellitus." Edward A. Doisy, Ph.D., professor and director of the department of biochemistry, St. Louis University School of Medicine, St. Louis, will give the second series, July 9-10, on "The Vitamin K Problem." The last group will be on "Recent Advances in Enzyme Chemistry" with James Batcheller Sumner, Ph.D., professor of biochemistry, Cornell University Medical College, New York, as the speaker, July 15-17. Tickets may be obtained by writing to the director of the summer quarter, University of Chicago.

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Western Reserve University School of Medicine

Fellowships and scholarships have been awarded from the Crile Research Scholarship Fund for work at the School of Medicine during the summer as follows: First year class: to Donald T. Book and Richard A. Porter for work in the department of biochemistry; and to Robert Neff Lewis, Howard J. Lockward, and Harold M. Peck for work in the department of anatomy. Second year class: Robert J. P. Bryan, department of hygiene and bacteriology; J. William Derr, pathology; Frank J. Rack and Margaret Ruth Read, physiology; Edward S. Rambousek, pharmacology; and George N. Spears, biochemistry. Third year class: to Joseph Dimon, department of hygiene and bacteriology; Harvey Krieger, surgery; and Austin Weisberger, pathology.

The Commonwealth Fund of New York has made appropriations totaling $17,900 to the School of Medicine for the use of Dr. Carl J. Wiggers, professor of physiology, for a three year program of studies of extracardiac factors

of circulation, the part which the blood vessels play in the blood flow, particularly in failure of the circulation in surgical shock and similar conditions.

The John and Mary R. Markle Foundation of New York has appropriated $4,100 for the continuation of studies of the "Cause and Treatment of Ventricular Fibrillation," the disturbance which stops the heart in acute and chronic heart disease, in angina pectoris, and "Coronary occlusion," and in accidental electrocution.

These studies have been in progress for a year in the School of Medicine, under the direction of Dr. Carl J. Wiggers, professor of physiology, and the results justify a further pursuit of the work.

The John and Mary R. Markle Foundation of New York has made a grant of $2,000 to the School of Medicine of Western Reserve University to support an investigation of intravenous bismuth injections by Drs. Torald Sollmann and Joseph Seifter of the Department of Pharmacology.

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The University of Oklahoma
School of Medicine

Dr. Edward Needham Smith, a graduate of the University of Pennsylvania and Columbia University, has been appointed associate professor of obstetrics on a full-time basis.

The Obstetrical Department of the University of Oklahoma is now offering a postgraduate course in Obstetrics for the practicing physicians in the State of Oklahoma and adjacent states.

The National Foundation for Infantile Paralysis, Inc., of New York City has recently renewed a donation of $3,000 to continue research among children in Oklahoma suffering from the results of infantile paralysis.

Dr. Russell L. Moseley of the Neurological Institute of Northwestern University Medical School, Chicago, Illinois, has been appointed assistant professor of anatomy ad-interim during the absence of Dr. Berry Campbell who has been awarded a Guggenheim Fellowship for the year commencing July 1, 1940.

The two-year rotating internship in the University and Crippled Children's Hospitals, the teaching hospitals of the University of Oklahoma School of Medicine, has been augmented by allotting one period in tuberculosis by affiliation with the Western Oklahoma Tuberculosis Sanatorium.

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McGill University
Faculty of Medicine

Professor J. C. Simpson, for many years a member of the faculty and since 1935 associate dean, succeeds Dr. A. Grant Fleming as dean. Dr. Fleming will devote his entire time to public health work. Dr. J. C. Meakins, professor of medicine and physician in chief of the Royal Victoria Hospital, succeeds Dr. Simpson as associate dean.

Dr. Simpson has been a member of the athletic board since 1923 and chairman since 1932. Since 1924 he has been on the board of reference of the Canadian Intercollegiate Athletic Union of which he is now president. Dr. Simpson has been a member of the McGill faculty since 1903.

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Emory University
School of Medicine

The Commonwealth Fund of New York has just given to Dr. Elizabeth Gambrell of this faculty a fellowship for a year of study in the Johns Hopkins University School of Hygiene and Public Health, beginning in the fall. Dr. Gambrell, who is assistant professor of bacteriology and pathology, will be granted a leave of absence for the year.

This is the third fellowship granted this school by the Commonwealth Fund in as many years. Dr. George T. Lewis of the department of chemistry is now on leave studying with Dr. Hans Clarke of Columbia University; Dr. John Venable of the department of anatomy returned last fall after a year with Dr. Wislocki at Harvard.

University of Alabama

The new, $650,000, Amelia Gayle Gorgas Library was dedicated with appropriate ceremonies May 7 and 8. The president of the university, Richard Clarke Foster, presided. Dr. Theodore H. Jack, president Randolph-Macon Woman's College, delivered the principal address. The subject was, "These Hundred Years."

At the Assembly of Friends of the Library, Professor Randolph G. Adams, Director William Clements Library of the University of Michigan, spoke on "The Debt of the Scholar to the Book Collector." Professor Bennett H. Branscomb, director of libraries, Duke University, spoke on "The Content of Southern Libraries.

The dedicatory address was delivered by Dr. George H. Denny, chancellor of the University of Alabama.

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University of Oregon
Medical School

Dr. William Y. Burton, St. Louis, has been appointed assistant professor of radiology effective July 1. Dr. Burton graduated from Washington University School of Medicine, St. Louis, in 1936.

The income from a recent bequest of $250,000 will be used to establish a Kenneth A. J. Mackenzie professorship in surgery. Dr. Mackenzie was a member of the faculty from 1887 until his death in 1920, first as professor of the theory and practice of medicine and later as professor of operative and clinical surgery. He was also dean of the medical faculty from 1912 until his death. The new fund also includes an annual memorial fellowship of $1,000 for premedical students.

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University of Pennsylvania
Medical School

The Foundation for the Study of Neoplastic Diseases has been created by the Penn Mutual Life Insurance Company. It will be under the immediate direction of Dr. John S. Lockwood, with all chiefs of service in the University Hospital cooperating to coordinate methods of diagnosis and methods and results of treatment in the various units of the hospital. The project will be financed by the Penn Mutual Life Insurance Company for five years.

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Vanderbilt University
School of Medicine

Dr. Tinsley R. Harrison, associate professor of medicine, delivered the Drs. Charles and Karl Emmerling Memorial Lecture at the headquarters of the Pittsburgh Academy of Medicine, May 13. His subject was "Newer Phases of Management of Hypertension."

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New York University
College of Medicine

At the twenty-fifth anniversary of the graduation dinner of the class of 1915, the seventy-two physicians in attendance pledged that a scholarship fund will be raised annually to be donated to the medical college. It will be known as "The Class of 1915 Scholarship Fund."

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University of Alberta
Faculty of Medicine

During the past year there were two hundred and thirty-three (233) students, of whom seventeen (17) were women, registered in the six years of the medical course. In the graduating class thirty-five (35) students, including three (3) women, are recommended for the degree.

Early in the session the Department of National Defense asked for the services of Dean Rankin for the position of Director of Hygiene Services, Canadian Active Service Forces, with the result that he transferred to the military forces in October last. As he, before leaving, had made all arrangements for the carrying on of teaching in the Faculty during the session, the courses were brought to a conclusion with but little disturbance of the normal routine.

In addition the medical staff was further depleted by the enlistment of

Dr. R. T. Washburn, Superintendent of the University Hospital; Dr. K. Hamilton of the Department of Medicine and Dr. M. Weinlos of the Department of Pathology. The entire officer personnel of Col. Washburn's hospital unit, No. 4, Casualty Clearing Station, is composed of recent graduates of the Faculty of Medicine. All these officers with the exception of Colonel Rankin are now overseas with the expeditionary force. As the war progresses it is to be expected that the staff may be further depleted.

Last autumn the Government allotted to the University Hospital part of the ground floor and one half of the third floor of the New Provincial Building on 101A Avenue, to be used for outdoor clinical purposes, with the result that there exists now a well arranged, modern, outdoor department, quite adequate for present teaching needs.

During the past session the new obstetrical extension of the University Hospital was completed. Albeit a small unit of only fifteen beds, it nevertheless increases the obstetrical teaching material of the department to that extent.

The annual Refresher Course, for graduates during convocation week, is now in progress with a registration of sixty-seven (67), a slight increase over last year.

The new course in Medicine begins with the session 1940-1941. It will consist of three (3) years premedical studies and five (5) years medical studies. It is proposed that the final year shall be entirely an intern year.

Regarding student activities, the students' society, the Medical Club, a voluntary organization, was, on student initiative, converted into the Medical Undergraduates Society, composed of all medical undergraduates and financed by a compulsory fee, approved of and collected at registration, for the organization by the University authorities. The officers of the Society now completely represent medical student opinion and wishes.

Dr. James Ower is acting dean during Dr. Rankin's absence on military duties.

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University of Toronto
Faculty of Medicine

Medals, prizes, fellowships, scholarships and bursaries awarded by the Senate of the University: Sixth year: Faculty Gold Medal, G. A. Lane; Faculty Silver Medal, H. Snitman; Faculty Silver Medal, T. A. Fraser; Ellen Mickle Fellowship, T. A. Fraser; Chappell Prize in Clinical Medicine, F. W. B. Hurlburt; William John Hendry Memorial Scholarship in Obstetrics and Gynecology, N. Littner; Ontario Medical Association Prize in Preventive Medicine, N. Littner; David Dunlap Memorial Scholarship, G. Tellson.

Undergraduate: David Dunlap Memorial Scholarships: (a) Fifth year, D. J. Breithaupt; (b) special third year, A. W. Smith. Ronald S. Saddington Medal in Pathology, Miss L. E. Whish; James H. Richardson Research Fellowship in Anatomy, H. C. Elliott; John Copp Bursary, D. W. Hest; B'nai B'rith Scholarship, W. Wise; Toronto Women's League of the United Synagogue, P. J. G. Maroosis; Baptie Scholarship, D. M. Boyd.

General News

Finney-Howell Fellowships in Cancer

The Finney-Howell Research Foundation, Baltimore, has announced Jan. 1, 1941, as the closing date for filing applications for 1941 awards in cancer research. Announcement was also made of a grant of $2,000 to Dr. George O. Gey to carry on his work in cancer at Johns Hopkins University School of Medicine. In addition, seven fellowships for investigation into the cause or causes and the treatment of cancer were renewed by the foundation and six new fellowships were awarded.

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George Dock Lectureship

The Walter Jarvis Barlow Society of the History of Medicine has created a lectureship in honor of Dr. George Dock, since 1932 honorary professor of medicine, University of Southern California School of Medicine, Los Angeles. Dr. Dock presented the first lecture at a dinner observing his eightieth birthday. His subject was "A Dictionary of Medical Biography."

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A New Series of Stereoscopic Microscopes

A new series of stereoscopic microscopes embodying notable optical and mechanical improvements is being introduced by Spencer Lens Company of Buffalo, N. Y., Scientific Instrument Division of American Optical Company.

A vivid stereoscopic image that is easier on the eyes, a great depth of focus, an exceptionally large object field and a high degree of resolution of fine detail giving critical sharpness to the image are the outstanding optical characteristics of the new instruments.

Equally noteworthy are the mechanical improvements which facilitate focusing on large or small specimens, and provide for quick changes in magnification. These instruments are heavier and more rigid. The objective lenses are held in a dust-proof revolving objective holder. A base with mirror provides for work requiring transmitted light.

The new instruments are offered in four different mechanical arrangements to cover a wide range of uses. Magnifications range from 6.3X to 144X. Seven different powers in paired objectives and four different powers in paired eyepieces provide a total of 28 different magnifications.

The angle between the axes of the two elements of the paired objectives is twelve degrees. In the prism boxes, each line of light is bent two degrees toward the center so that the convergence at the eyepieces is but eight degrees. This dual convergence maintains the stereoscopic effect yet makes it possible to work comfortably for long periods without eyestrain — an exclusive Spencer feature.

Many thousands of instruments of the stereoscopic type have been sold during recent years for work in botany, embryology, entomology, parasitology, pathology, protozoology and zoology.

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New Blood Pressure Cuffs

A new, hook-type blood pressure cuff has been placed on the market by the Taylor Instrument Companies, of Rochester, N. Y.

The cuff is said to be easier to use, as it fits all arms; it can be applied quickly, and can be removed even faster; and, because it eliminates ballooning on flabby arms, it is said to be more accurate.

It fastens on the arm by a metal button-hole. There are seven equally spaced button-holes, five-eighths of an inch apart. Any one of these can be used, permitting—with the seven buttons—fourteen different size adjustments.

All metal parts are stainless steel. A heavy gray army cloth material is used for the cuff itself, ensuring long wear under continuous use.

The new cuff can be used with either the aneroid or mercury type of blood pressure instrument. When used with the aneroid, a special device is supplied for fastening the gauge to the cuff permanently. This prevents accidental dropping of the aneroid manometer, and also ensures that the gauge is always in correct reading position when the cuff is applied to the arm.

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Fellowship of the Medical Faculty of the University of Geneva

The Medical Faculty of the University of Geneva offers a stipend of 3,000 Swiss francs for post-graduate study in Geneva during the academic year 1940-41. To be eligible the applicant must be an American citizen, holder of the M.D. degree from an approved American medical school, and must have an adequate command of the French language. Applications should be filed with the Institute of International Education, New York City, from whom further information may be obtained.

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Osler Memorial at Blockley

The old autopsy house where Osler worked at Blockley has been restored as the Osler Memorial Building, and was dedicated on the grounds of the Philadelphia General Hospital, at Curie Avenue, near 34th and Pine Streets, Philadelphia, Pa., at 2 P.M. on June 8, 1940.

Original furnishings, including the necropsy table, have been collected. The painting by Dean Cornwell, N.A., of New York, entitled "Osler at old Blockley," later to be hung in the building was on exhibition during the celebration.

There are facilities in the building for the housing and preservation of relics of old Blockley, as well as Osleriana. The Committee would welcome any additions to this collection.

University of Pennsylvania Placement Service

The University of Pennsylvania invites employers to use the facilities of the Placement Service in seeking qualified men and women trained in any one or more of its Schools and Departments (including the Medical School). Undergraduates are available for part-time student employment under the Student Aid Program. In addition to seniors and recent graduates seeking full-time employment, many alumni who have had successful experience are available for reemployment in opportunities offering advancement.

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National Institute of Health

The Institute is moving into a new home—six new buildings on sixty acres in the outskirts of Washington, D. C. Here 600 scientists and technicians work on problems vital to public health, especially prevention of disease.

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Gorgas Institute of Medical Sciences

A new medical college, with the name given above, non-sectarian, with an eventual endowment of $25,000,000, is planned. Dr. Simon L. Ruskin and Dr. Anthony Bassler have petitioned the Board of Regents of New York State for a provisional charter. The college may be situated in a 22 story building at West End Avenue and Seventy-second Street, New York City. Mr. Max Steuer, an attorney, is the most active sponsor of the project. It is claimed that there is great need for this institution, especially to care for many American students who have been attending medical schools in Scotland to which they cannot return because of the war and American medical colleges are unwilling to admit them. It is emphasized that the "quota system" will not be employed.

The Institute is to consist of a number of schools allied to the medical field —optometry, podiatry, dental, medicine, postgraduate medicine, public health and

preventive medicine, with special emphasis on tropical medicine. Between 500 and 600 students will be admitted to the medical school. It is said that an excellent faculty will be available as soon as the college opens. Distinguished exiles will be members of this faculty. Several New York hospitals not now being utilized will furnish clinical facilities for teaching. Men of all religious faiths are participating in the planning of this college. If the charter is granted, the first session will begin this Fall.

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Burton-Levin Foundation

It is the purpose of this Foundation, of which Dr. M. B. Levin is director, to establish how the best diagnostic and therapeutic aids can be made to the general public through the practicing physician, at least on as good a basis as is practically available at the finest hospitals.

The work in the chemical laboratories has dealt chiefly with the silicates of magnesium, especially those which have been found exceedingly useful in the treatment of peptic ulcer. It is the opinion of those engaged in this work that although silicates of magnesium have been studied for at least one hundred years, relatively little is known about them. These silicates, which have found such diverse uses, would seem to warrant further study.

The Foundation also has concerned itself with improvements in light and sight equipment of diagnostic aids, in convenience and application of blood pressure equipment; improvement in microscopic systems, studies of photography, in color, of body cavities; improvement in hearing aids for diagnostic purposes; chemistry of the gastrointestinal tract; effect of diet on ulcers; the common cold; high frequency effects in colloids; histology of foods; cancer.

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Abbott Fellowships

For the academic year 1940-1941, the Abbott Laboratories has established fellowships in organic chemistry to Cornell, Harvard, Illinois and Michigan and in biochemistry to California, Columbia and Cornell. These fellowships, carrying stipends of $650 per year, are available to graduate students for work leading to the doctorate degree. Recipients are to be selected by the universities in which their work is being done. They are not limited as to subjects on which they will work.

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Harvard School of Dental Medicine

Through gifts of $1,300,000 already made towards a required total of $1,550,000, Harvard University will inaugurate in 1941 an entirely new five-year course in dental education, President Conant announced today. This course will combine the basic knowledge and skills of both medicine and dentistry and is designed to train new types of scientific workers for the attack on the great public health problem of dental disease.

Harvard was the first university in America to establish a dental school and becomes the first university to institute this particular plan in the development of dental and medical education.

This new development has been made possible by the gift of $650,000 from the Carnegie Corporation, $400,000 from the Rockefeller Foundation, and $250,000 from the John and Mary R. Markle Foundation. A balance of $250,000, bringing the total to $1,550,000, is required to fulfill the program; but the University announces it has sufficient expectation of finding a means to provide this balance to proceed with the entire plan.

The President and Fellows of Harvard College have also transferred definitely to the resources of the School of Dental Medicine $1,000,000 tentatively placed at the disposal of the Dental School ten years ago. The permanent new assets for teaching and research in dentistry in Harvard thus total $2,550,000.

Under the new program, the Harvard Dental School will be renamed the

Harvard School of Dental Medicine. Dental students will register in both the new School of Dental Medicine and in the Harvard Medical School, taking three and one-half years of the same medical courses as other students in the Harvard Medical School, and in addition one and one-half years of specific dental training. Graduates will receive both the M.D. and D.M.D. degrees. Admissions to the School of Dental Medicine will be governed by the same standards and the same committee which govern admissions to the Harvard Medical School.

Under the plan, the last class to enter the present four-year dental curriculum at Harvard will be admitted this coming September. The new program will go into operation in the fall of 1941.

It is planned to limit admissions to the new School of Dental Medicine to a small number of highly qualified men, who will be prepared for certain particular opportunities in the dental field: in teaching, research, special types of practice, general practice and public health. For example, men will be equipped to attack the manifold problems of dental medicine in private practice as clinical specialists of particularly broad training, or to teach the science of dentistry in dental schools, or to investigate and treat dental disease in hospitals and clinics.

Certain important changes of method in dental education will be involved, bringing dental education at Harvard closer in line with the methods and standards of medical training. The plan envisages the development, in hospital and other dental clinics, of opportunities for training after graduation. It is anticipated also that a number of teaching and research fellowships will be established. As in the Medical School there will be left to postgraduate experience some of the preparation for complete technical proficiency in specialized fields. The program will result also in closer integration of teaching, research, and clinical work in dentistry at Harvard.

By bringing dental and medical students together in the basic preclinical and clinical subjects, it is expected that not only will the educational opportunities of the dental student be advanced, but also that there will follow modifications in the teaching of medical students, bringing to them important knowledge of oral medicine and oral disease now lacking in their training.

Plans for the School of Dental Medicine have been developed through many months of study by a committee of medical and dental educators. This committee was as follows: C. Sidney Burwell, M.D., Research Professor of Clinical Medicine and Dean of the Faculty of Medicine; Pearcy R. Howe, D.D.S., Thomas Alexander Forsyth Professor of Dental Science and Instructor in Pathology; Leroy M. S. Miner, D.M.D., M.D., Professor of Clinical Oral Surgery and Dean of the Dental School; Harold C. Stuart, M.D., Assistant Professor of Pediatrics and Child Hygiene; Kurt H. Thoma, D.M.D., Charles A. Brackett Professor of Oral Pathology; Lewis H. Weed, M.D., Professor of Anatomy and Director of the Department of Anatomy, and Director of the School of Medicine, Johns Hopkins University; George B. Wislocki, M.D., Parkman Professor of Anatomy; and S. Burt Wolbach, M.D., Shattuck Professor of Pathological Anatomy.

Book News

Introduction to Medicine

By Don C. Sutton, M.D., Associate Professor of Medicine, Northwestern University Medical School: With Introduction by Ada Belle McCleery, R.N., Superintendent Evanston Hospital, Evanston, Illinois. The C. V. Mosby Company, St. Louis. Price, $3.25. 1940.

Since medical colleges are becoming more interested in nursing education, some having included the School of Nursing in their departmental setups, this book should appeal to them as a text. The fundamental background of medicine is discussed in Part I. Part II presents a discussion of disease entities. Chapters are included on social service, the mental reaction of the patient to disease; effect of disease on the mentality of the patient; history taking; heredity; laboratory tests. Questions at the end of each chapter cover the minimum requirements. This book is entirely new in this field. Even the medical student will find it useful.

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Arthritis and Allied Conditions

By Bernard I. Comroe, M.D., Instructor in Medicine, University of Pennsylvania. Lea & Febiger, Philadelphia. 1940. Price, $8.50.

Essentially a book for the practitioner. It answers a multitude of questions which have arisen as to the merits of various forms of therapy; surveys the literature; discusses the various methods of treatment employed in arthritis.

Among the many topics considered are whether tonsils or pulpless teeth should be removed routinely in cases of chronic infectious arthritis. It presents the role of vitamin therapy in the rheumatic diseases and discusses the value of sulfanilamide, sulfapyridine or sulfathiazol in the antiarthritic regimen and whether they are curative, contraindicated or dangerous. It considers whether the practicing physician should treat subdeltoid bursitis, chronic low back strain or sciatica and if he should diagnose and treat flat and painful feet. It discusses arch supports and many similar topics.

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The Compleat Pediatrician

By Wilburt C. Davison, M.D., Professor of Pediatrics, Duke University School of Medicine. 3rd Ed. Duke University Press. 1940. Price, $3.75.

Encyclopedic in scope; of convenient size, combining in one volume the information usually found in several volumes; a ready reminder containing a vast collection of facts, in brief but complete, which can be recommended without reservation not only to the practitioner but to medical students. It is "the compleat pediatrician."

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Clinical Pathology

By Charles F. Craig, M.D., Emeritus Professor of Tropical Medicine in the Tulane University of Louisiana, New Orleans, Louisiana, and Ernest Carroll Faust, Ph.D., Professor of Parasitology in the Department of Tropical Medicine, Tulane University of Louisiana. 2nd Ed. Lea & Febiger, Philadelphia. 1940. Price, $8.50.

The work presents in concise form the essential facts concerning the parasites, the symptoms caused by their presence and the important methods of diagnosis, treatment and the control of the diseases which they produce. An appendix describes the various techniques for collection, preparation and identification. The bibliography is unusually extensive and there is an index of authors as well as of subjects.

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Minor Surgery

By Frederick Christopher, M.D., Associate Professor of Surgery at Northwestern University Medical School, Chicago. 4th Ed. W. B. Saunders Company, Philadelphia. 1940. Price, $10.

The continued, well deserved, popularity of this book has prompted the author to revise the text completely to have it represent present day beliefs of surgeons in the matter of so-called minor surgery. It is an ideal text for the undergraduate student because it covers as much of surgery as he should know something about when he enters on everyday practice. Wider and more detailed knowledge of surgery should be acquired through graduate study in this special field.

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The Foot and Ankle

Their Injuries, Diseases, Deformities and Disabilities. By Philip Lewin, M.D., Associate Professor of Bone and Joint Surgery, Northwestern University Medical School. Lea & Febiger, Philadelphia. 1940. Price, $9.

Here is presented in natural sequence and concise language the underlying principles of the etiology, pathology, diagnosis and treatment of congenital, static, infectious and

paralytic lesions of these parts. Special consideration has been given to fractures, dislocations and similar conditions. The work has been covered from all the practical points of view—orthopaedic, surgical, gynecological, neurological, sociological and economic. Emphasis is continually placed on the fact that the chief objective of treatment is to restore function. At the same time the physician must be able to make a fair estimate of partial or total disability so that in compensation cases all parties involved may be treated fairly. In this task the book will be truly helpful. The relation of foot defects to other bodily complaints is fully covered. The importance of routine examination is stressed and the responses evaluated. The relationship of orthopaedics to neurology is emphasized.

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Clinical Heart Disease

By Samuel A. Levine, M.D., Assistant Professor of Medicine, Harvard Medical School. 2nd Ed. W. B. Saunders Company, Philadelphia. 1940. Price, $6.

A concise, but nonetheless complete, discussion of this most important of all clinical entities—heart disease. The medical student will profit greatly from its perusal as an aid in his clinical clerkships. The book is basic. It is not intended to cover the whole field. It does present the whole clinical picture of the more common cardiac problems. Therefore, it is a good book for the student.

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A Textbook of Pathology

By W. G. MacCallum, M.D., Professor of Pathology and Bacteriology, Johns Hopkins University. 7th Ed. W. B. Saunders Company, Philadelphia. 1940. Price, $10.

Any book which has held its place as a teaching text for twenty-four years needs no introduction. It is definitely a student text and it conforms to present trends in medical education in correlation and integration with clinical work. Most important for the student is the detailed study from every viewpoint of cases at autopsy. This phase of teaching is emphasized in this book.

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Obesity and Leanness

By Hugo R. Rony, M.D., Formerly Associate in Medicine and Chief of Endocrine Clinic, Northwestern University School of Medicine. Lea & Febiger, Philadelphia. 1940. Price, $3.75.

This work is the first comprehensive presentation of the subject since the publication of v. Noorden's monograph on obesity, and the first systematic attempt to describe obesity and leanness as facets of a single problem. Obesity and leanness are now regarded as something more than disturbances of caloric balance. Observations in the fields of endocrinology, neurology, intermediary metabolism, cell physiology and genetics have furnished extensive ramifications and implications. The book clarifies the connections between the various aspects and arrives at an ordered conception of the total pathological problem. This conception with a new classification of the clinical material will prove instructive for the student of the problem and useful for the medical practitioner. The reader will find the principal subject clearly expressed and logically developed with due attention to practical questions of diagnosis and therapy.

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Manual of Vascular Peripheral Disorders

By David W. Kramer, M.D., Assistant Professor of Medicine, Jefferson Medical College. The Blakiston Company. Philadelphia. 1940. Price, $6.

This new book presents an authoritative and comprehensive study of peripheral vascular disorders with emphasis on their diagnosis, differential diagnosis and treatment. There is a full discussion of symptoms and signs in physical examination of patients and a clear outline of the proper therapy for each condition. Tests, methods and apparatus are evaluated. Many pertinent case records, charts and photographs illustrate the text. In the discussion of treatment, the objectives and indications of each method are clearly outlined. The book provides the details of each procedure for the management of patients both in hospital and private practice. It utilizes recent research findings for the earlier recognition of disorders.

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A Method of Anatomy

By J. C. Boileau Grant, M.B., F.R.C.S. (Edin.). Professor of Anatomy, University of Toronto. 2nd Ed. A William Wood Book: The Williams & Wilkins Company, Baltimore. 1940. Price, $6.00.

The new Anatomy is now available in a greatly enlarged second edition. Gaps have been closed, an introductory section on the systems of the body has been added, thus meeting the requirements of the medical student even more fully than before. A hundred new illustrations have been added (bringing their total to 651); many old ones have been either improved or replaced. The approach of the subject remains the same: "original and singularly attractive." The book is designed to make anatomy rational, interesting and of direct application to the problems of medicine and surgery. It correlates facts, presents them in their mutual relationships. Because the imagination is intrigued, so-called dry facts and details remain within certain and easy recall.

Surgery of the Hand

Some Practical Aspects. By John Harold Couch, M.B., F.R.C.S., Edin., Department of Surgery, University of Toronto. University of Toronto Press. 1939. Price, $1.50.

A very useful book for undergraduates and practitioners. It deals with the subject in a clear, concise manner, considering injuries and infections of the hand which every practitioner is called on to treat and should know how to treat, such as paronychia, whitlow, tenosynovitis, cellulitis, general principles of treating infections and a fine chapter on the economic cost of infection. Illustrations are in line form in conformity with clarity and conciseness. Nerve and tendon sutures and amputations are dealt with clearly.

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A Handbook for Dissectors

By J. C. Boileau Grant, Professor of Anatomy, and H. A. Cates, Associate Professor of Anatomy, University of Toronto. A William Wood Book: The Williams & Wilkins Company, Baltimore, 1940. Price, $2.50.

This guide to the display of the structures of the human body is noteworthy for its clarity and brevity. The present form is the result of constant improvement of a mimeographed instruction written years ago for the users of "A Method of Anatomy, text and figures of which are referred to in the Handbook for Dissectors.

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Compendium of Regional Diagnosis in Lesions of the Brain and Spinal Cord

By Robert Bing, Professor of Neurology, University of Basel, Switzerland. Translated and edited by Webb Haymaker, Assistant Clinical Professor of Neurology and Lecturer in Neuro-Anatomy, University of California. 11th Ed. The C. V. Mosby Company, St. Louis, 1940. Price, $5.

This book has been an outstanding authority in this field for thirty years. Its size and its scope should make an appeal to the medical student.. It is well illustrated.

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Neoplastic Diseases

A Treatise on Tumors. By James Ewing, M.D., Professor of Oncology, Cornell University Medical College. 4th Ed. W. B. Saunders Company, Philadelphia. 1940. Price, $14.

A master work by a master. Completely revised to meet present day needs. Much old material, mainly of historical interest, has been omitted, together with references; discussions of many debatable tumors have been excluded and controversial reports have been curtailed—making room for many new contributions of importance. The illustrations are numerous and good. Worthy of special mention is the index. It is complete.

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A Textbook of Histology

By Harvey E. Jordan, A.M., Ph.D., Professor of Anatomy and Director of the Anatomical Laboratories, University of Virginia. 8th Ed. D. Appleton-Century Company, New York. 1940. Price, $7.

Important new additions to histology have been incorporated; many new illustrations added; many chapters completely revised and rewritten; removal of literature citations from the text (a good change); elimination of chapters on technic and directions for laboratory work—all in keeping with the limited time available for histology in the curriculum. References are recorded as footnotes and reassembled in a bibliographical list at the end of the book. A book which survives seven editions must have justified its existence. That is the reason for this book.

Obstetrics and Gynecology

By The Departmental Staff of the University of Chicago and Other Contributors

Edited by FRED L. ADAIR, M.A., M.D., F.A.C.S., Mary Campau Ryerson Professor and Chairman of the Department of Obstetrics and Gynecology, in the University of Chicago

Two octavo volumes totaling 2031 pages, with 663 engravings and 25 plates, mostly in color. Buckram, $20.00, net.

This is a complete systematic guide for the general practitioner and student. It reflects the growing tendency to combine obstetrics and gynecology in order to avoid duplication, omission and the lack of coordination. It includes everything considered essential to the student and general practitioner. The principles that underlie operative procedures are presented with their indications and contraindications. This is a significant contribution to a subject of ever widening importance.

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